CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

Vol. 12 JUNE, 1917 No. 12

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MONTHLY BULLETIN

CALIFORNIA STATE BOARD OF HEALTH

Devoted to the Prevention of Sickness and Death

¶ Entered as second-class matter, August 15, 1905, at the post office at Sacramento, California, under the Act of Congress of July 16, 1894.

Sent free, on request, to any citizen of California.

WILBUR A. SAWYER, M.D., Secretary and Executive Officer . Editor
GUY P. JONES, Morbidity Statistician . . . Associate Editor

EDITORIALS.

The Fringe Around the Army Camp. There will be no unpreparedness about the army of prostitutes who will soon attempt to mobilize and lay siege to the camps of our new recruits. The conditions of our vast military mobilization will be ideal for their destructive operations, unless they are checked, and much incapacity will result in the Army to say nothing of the increase in syphilis and gonococcus infection in the civil population with which the soldiers will mingle. This picture is black, but it need not materialize. If the Army, the United States Public Health Service, the State Board of Health, and the municipalities involved will immediately complete plans and organize for effective cooperation under government leadership, there will not be a great increase of venereal diseases such as has occurred among the other warring nations.

* * * * * *

The First Large Disease Problem of the War. The first large and difficult disease problem of the war will be the prevention of venereal diseases. There seems to be no serious disagreement about the methods and the success which would follow their application. First and foremost there must be a rigorous policy of suppression of commercialized prostitution from a wide zone around the military camps. If the Army will take complete charge of this, well and good; but, if not, it will be the duty of state and city to assist and protect the Army by taking the matter in hand. Until the camp sites are established, every city should do what it can to improve conditions within its borders and to organize machinery for assisting in carrying out the Army's wishes as soon as they are expressed.

* * * * * *

The Army Has Demonstrated Successful Methods. The regular army is already doing excellent work in reducing venereal diseases among the troops. Part of their success is doubtless indirectly due to the reduced consumption of alcohol in the Army, but most of the improvement is the result of the more direct methods of control. The Army is instructing the men to stay away from prostitutes, is imposing prophylactic treatment on those who yield to temptation, and is punishing the men who do not report for treatment after exposure and later develop venereal disease. Is it right to place the whole burden of venereal disease control on the Army officers and even to offset their efforts by permitting houses and camps for prostitutes to be established just outside the reach of the military authorities? Most decidedly not! The Army, the United States Public Health Service, the State Board of Health, and the municipalities must see that conditions around the camps are not designed to break down the teachings of the Army officers. Officials who wink at the exploitation of our soldiers at the expense of prolonged injury to their health will be aiding the enemy in a most inexcusable manner.

* * * * * *

The State Board of Health Takes the Initiative. By formal resolution, printed elsewhere in this issue, the State Board of Health has appealed to the mayor of every city in California to demand of his health officer, police department, and other appropriate officials an active policy of protection of the enlisted men and of the civil community against the menace of venereal disease. At the same time the board has called attention to the fact that, unless restrained by public authority, prostitutes gather in large numbers near army camps and spread venereal disease among the soldiers. Many of the mayors have already replied and most of them express hearty approval and an intention to do everything in their power to protect the soldiers from venereal disease and keep down commercial prostitution. The spirit is fine and promises well for the success of the first great step in sanitation during our war.

* * * * * *

Reaping the Whirlwind Because of Neglect of Tuberculosis. France, suffering from the many exigencies of war, is carrying the added burden of a vast amount of tuberculosis. By February of this year, according to Doctor Hermann Biggs, 150,000 French soldiers had been returned to their homes with active tuberculosis, and there are many additional cases among returned prisoners, refugees, and the general population, making an estimated total of 400,000 tuberculous persons with practically no facility for properly caring for them or supervising them. Among the English soldiers, on the other hand, tuberculosis has not offered a serious problem. France is reaping the results of the neglect of tuberculosis in time of peace. She did not class tuberculosis as a public health problem; she permitted her people to cling to an almost ludicrous aversion to fresh air, and she provided few dispensaries and less than 1,000 sanatorium beds for tuberculosis in all France, and these in private institutions. Resigned to a high annual tuberculosis death rate during peace (three per thousand population, contrasted with one per thousand in England and one and one-half in America), the war with its hardships has multiplied the problem until it can not be borne without help. England fought tuberculosis hard before the war, and she provided careful medical examinations to exclude incipient and latent tuberculosis from the Army. The tuberculosis campaign in time of peace and the caution during the war are bearing fruit. A most wonderful demonstration that tuberculosis is preventable!

Where does America stand? In time of peace we have done better than France, but not so well as England. Why not learn from the experiences of others and handle the tuberculosis problem of the war in an ideal manner from the start? Careful exclusion of the tuberculous recruit from the army is not enough. He should be referred to the civil authorities, who in turn should see that he is built up instead of being broken down during the coming period of stress. The California State Board of Health is asking the military authorities to help carry out this life-saving plan.

* * * * * *

Help Remove Correctible Defects. Many thousands of our young men will soon be undergoing a thorough physical examination to determine their fitness to enter the army. The majority will be accepted and Uncle Sam will thereafter see that they get any necessary medical, surgical, or dental care. Thousands, however, will be rejected because of physical defects, many of them correctible. They will leave the examining room feeling that they are discards and that they can not measure up to other men. It remains to be seen whether or not the rejected men whose defects can be corrected, will be given an opportunity to free themselves of their handicaps and so take their places in the ranks at the next draft, or at least play the part of sound, strong men in agriculture or manufacturing or business. It will be a shame indeed if no good comes to the discarded recruits from the large number of physical examinations which will need to be made. The surgeons, physicians, oculists and dentists of California should see to it that no one lacks the opportunity of having a correctible physical defect removed. In this way, thousands of sound soldiers can be produced out of ineligible material and many of those who stay at home can be made more useful to the nation.

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Prevent Defects of Rising Generation. Many of the physical defects of these young men are present because parents, physicians, teachers, and employers failed to notice them and to make possible their correction. The best time to correct most defects is early childhood, so that their removal may be more complete and the benefit extend over a long life. The next generation will have fewer correctible physical defects, because our children are receiving better supervision through physical school-inspection, and more attention is being paid to school hygiene and physical development. We are beginning to realize that to save one child from ten years of headaches due to eyestrain, or to open one pupil's obstructed nostrils is worth the whole year's salary of a qualified school nurse or school physician. The disgrace of allowing a child to struggle to maturity under a removable physical handicap rests upon parent, family physician, teacher and physical school inspector. The blame should be definitely placed in every case of criminal or stupid neglect so that there will be keener observation and more opportunities for correction.

State Board of Health Anxious to Do Its Bit. The State Board of Health has offered its cooperation without reserve to the United States Public Health Service and the Army in the sanitary problems which will arise in California during the war. There are big problems ahead, and the board intends that it shall not be found wanting when the strain comes.

* * * * * *

California Now Has Best Milk Law. Governor Stephens has signed the 1917 milk bill, thus strengthening the law providing for pure milk throughout California. This state has now the best milk legislation of any state. After the law becomes universally enforced, infant mortality rates in California will be reduced, making this state a still better place for the raising of children. The women of California through their organizations, particularly the Congress of Mothers, deserve great credit for their persistent winning fight for a safe milk supply for the children.

* * * * * *

New Law Provides for Local Health Districts. Several communities are already planning to take advantage of the new law providing for the formation of local health districts. This measure permits of a single organization for the administration of health matters in several adjoining cities and surrounding territory. This will provide for securing the services of a full-time expert in public health, who shall have control of health matters throughout the district. Many small cities will now be able to enjoy advantages that heretofore only the large cities with expensive health departments have been able to afford.

* * * * * *

To Prevent Food Poisoning. Rising prices of foodstuffs will lead many a housewife this year to can vegetables at the seasons when they are cheapest. If this is to be done with safety, methods must be devised and popularized which will protect against botulinus poisoning from eating home-canned vegetables. During the past few years a number of persons in California have been killed by eating home-canned corn or beans which had been infected with the botulinus bacillus, a spore-bearing organism able to resist ordinary boiling.

Investigations are being carried on by the Bureau of Communicable Diseases in cooperation with the Department of Agriculture of the University of California with a view to discovering some simple way of preventing the growth of the botulinus bacillus and the production of its toxin in vegetables canned without sterilization by steam under pressure. These investigations are not yet completed.

A most thorough study of the whole subject of botulinus poisoning in California is being carried on by Dr. E. C. Dickson of the faculty of Stanford University Medical School in cooperation with the State Board of Health. This most important work will show the frequency of botulinus poisoning in California, the circumstances of its occurrence, and the nature of the effects of the poisoning on man and animals. This information will be very useful in preventing poisoning by the botulinus bacillus. Health officers and physicians are urged to cooperate with Dr. Dickson in this work and to report all cases of suspected botulinus poisoning to the State Board of Health at once, so that investigation may be made promptly.

* * * * * *

High Cost of Food and Public Health. There is danger that the high cost of food may have a very serious and disastrous effect upon the public health. Pellagra, scurvy, and beriberi are all due to deficiencies in diet, and lack of variety of food is responsible for many of the diseases from which mankind suffers. High prices will undoubtedly eliminate a varied diet for many people. Since pellagra is so common in many institutions where a one-sided diet is provided, it is essential that institutions now serving well-balanced dietaries take special care, in spite of rising costs, to supply their charges with proper foods. State institutions in California are provided with the services of a consulting nutrition expert, Professor M. E. Jaffa, and due to the excellent policy insisted upon by the State Board of Control, there is little danger that the high price of foodstuffs will work any such harm upon the inmates of California state institutions.

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Keep on Watch for Unfit Food. Since importations of food and drink from Europe were stopped by war, some liquor men in California have been tempted to refill bottles, originally containing imported products, with cheap and inferior imitations. One wholesale liquor firm in San Francisco, recently caught in such substitutions by inspectors of the California State Board of Health, was prosecuted by the United States Government, and, upon conviction, paid fines amounting to $25,000. The substitution of inferior food products is not confined to liquors, however. High prices will cause many food purveyors to provide cheap substitutes in place of wholesome products. Health departments should watch carefully in order to make certain that no food unfit for human consumption is served in any restaurant, delicatessen, bakery, or any other place where food is sold.

* * * * * *

Two More Typhoid Carriers Discovered. In this issue of the Bulletin, in the report of the Bureau of Communicable Diseases, Dr. J. G. Cumming reports the detection of two more typhoid carriers. The first had infected four persons in her home, and the second had been responsible for the infection of twenty-four people who took milk from a dairy with which she was connected. With the recent detection of these rather numerous carriers the typhoid cases which formerly remained in mystery are now being accounted for. The control of typhoid carriers is helping in the rapid reduction of the already low typhoid death rate of California.

COOPERATION TO BANISH MOSQUITOES.

Organization of the Los Molinos Mosquito Abatement District.

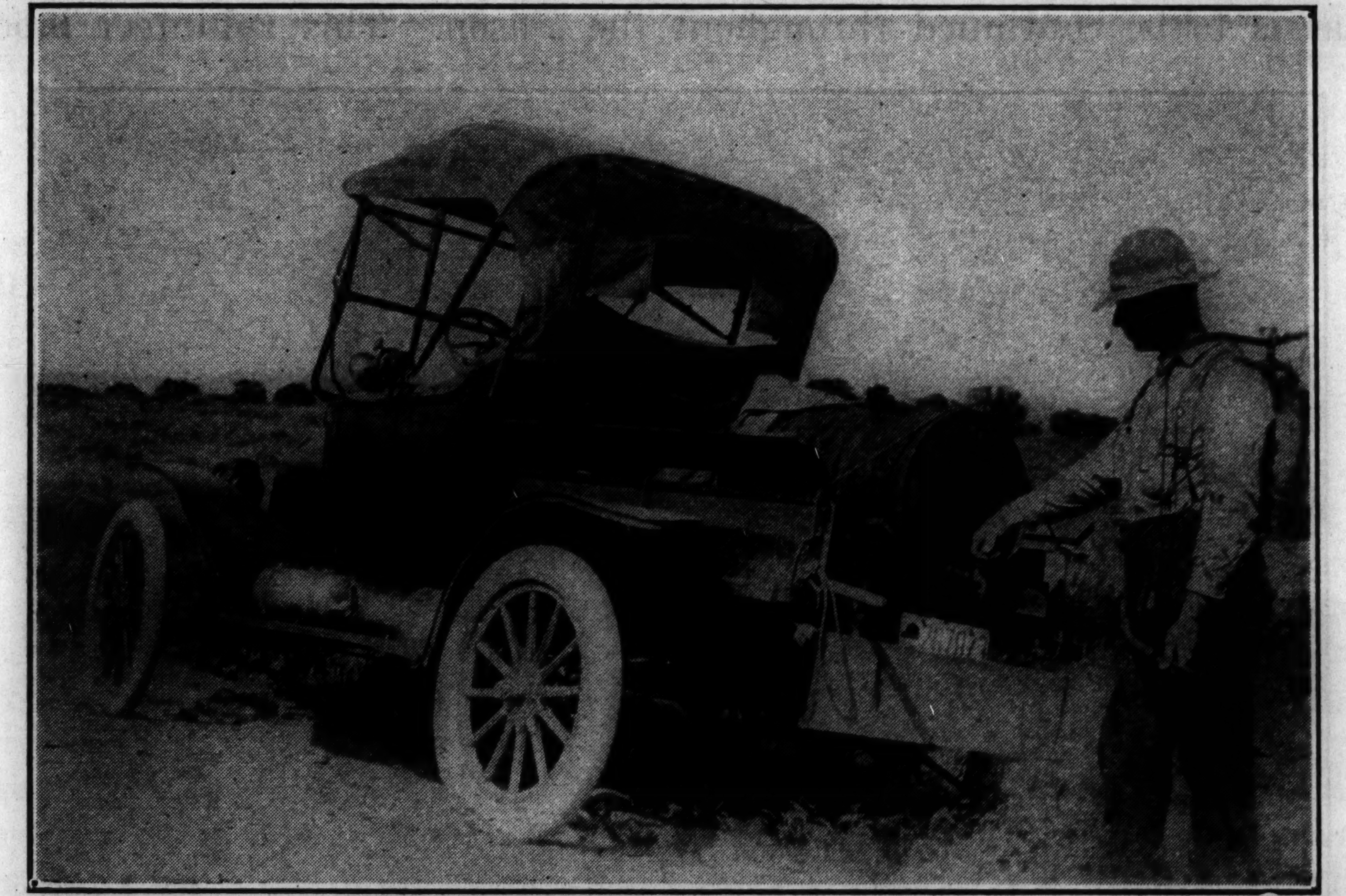
The recent organization of the Los Molinos Mosquito Abatement District shows that public spirit and a willingness to cooperate in the work is more essential in the formation of such a district than the expenditure of large sums of money. With only sufficient funds for the employment of one man and for the purchase of oil, the work of organizing the district was started May 1. During the first days of the month, fifty men, many of whom brought teams, appeared for volunteer work. They drained sloughs, filled depressions, and oiled pools of standing water, making a good start in the abatement work that is to be continued throughout the season. This volunteer labor was given at one of the busiest seasons of the year. This undertaking of the residents of the Los Molinos district shows that similar organizations may be formed and effective work in mosquito control performed in almost any part of California where such a project is desired.

Oiling a pool with knapsack spray-pump to kill mosquito larvæ.

Following an investigation into the malarial conditions by Dr. Frank L. Kelly, assistant epidemiologist of the State Board of Health, the trustees of the Los Molinos district requested assistance in starting mosquito control work. Mr. Edward T. Ross, State Sanitary Inspector, was detailed to aid in this work, Dr. Kelly joining Mr. Ross later, and together they supervised the work. Mr. Ross looked after the work of draining, filling and oiling, and Dr. Kelly made an endemic index of malaria in the district, taking blood smears from school children and adults.

The Los Molinos Mosquito Abatement District is made up of four school districts, the Los Molinos, Oak Park, Dairyville or Los Robles, and Cone. The five members of the board of trustees are: O. W. Chambers, chairman; W. T. Ruby, secretary; F. C. Pugh, J. W. Rowland and Alex. McCullagh.

The district lies between the Sacramento River on the west and the foothills on the east. It is cut laterally by Craig Creek, Antelope Creek, Dry Creek, and the Los Molinos River, all emptying into the Sacramento River. Besides these principal drainage ways it is cut by numerous sloughs and spillways. On account of the character of the land these sloughs and spillways constitute the main problem in the mosquito control work, for when the irrigation season begins, the seepage and waste water runs to the natural drains, where it forms standing pools. In order effectively to control mosquito breeding these must be opened by ditching and clearing the vegetation so that the water will drain to one of the creeks or rivers or to a point where it can be collected and oiled. In this district there are also about 120 miles of irrigation canals and ditches controlled by the Los Molinos Land Company. The company officials, through Mr. Conway, the engineer, gave assurance that they would keep these in such condition as not to cause any nuisance.



A complete oiling outfit in use on the Los Molinos Mosquito Abatement District. The light machine can reach almost any part of the district. The oil tank is accessible for filling the spray-pump.

After a careful survey it was seen that the proper drainage of the sloughs and spillways did not present any technical engineering problem. On account of the natural fall the only work necessary was that which could be done by plowing and by pick and shovel work.

The trustees of the district had planned a meeting in each of the four school districts for the purpose of acquainting the people with the methods of malaria and mosquito control and to obtain volunteers for the needed work on the sloughs. It was necessary to have volunteer work done, as the money raised by levying the maximum tax was only sufficient to employ one man and purchase oil. This money is not available until the first of July. The land company is financing the work until that time.

At each of these meetings, Mr. Chambers, chairman of the board of trustees, outlined the formation of the district, Dr. Kelly explained the transmission of malaria, Mr. Ross spoke on mosquito control, and Mr. Pugh, one of the trustees, called for volunteer workers. Dr. Belyea, deputy county health officer, presided at two of the meetings. The first meeting was held at Oak Park on April 27, the second at Dairyville on April 28, the third at Cone on May 1, and the fourth at Los Molinos on May 2. Practically all of the men present volunteered to do at least one day's work on the sloughs and spillways in their own districts.

The men agreed on a day on which they would work on the problems in each district. On Monday, May 1, 15 men in the Oak Park district reported for work; on Tuesday, 10 in Dairyville; on Wednesday, 17 in Cone, and on Thursday, 23 in Los Molinos. Several of the men brought teams and, as all were greatly interested, a large amount of work was accomplished. The men deserve great credit for leaving their own work at the busiest season of the year. It is planned to hold more such days later on, until the work is completed.

The State Board of Health will assist in the formation of mosquito abatement districts wherever there is a malaria and mosquito problem to be solved.

STATE SANITARIANS EAGER TO SERVE THE NATION.

All the Pacific Coast States and even the distant Territory of Hawaii sent the executive officers of their state or territorial boards of health to Washington, D. C., to consider war sanitation, in response to the call of Surgeon-General Rupert Blue of the United States Public Health Service. Forty-three states and one territory were represented at the Conference of State and Territorial Health Authorities with the United States Public Health Service, held on April 30 and May 1. After this meeting the health officials met again on May 2 and 3 as the Thirty-seventh Annual Conference of State and Provincial Boards of Health. In both conferences many important public health subjects were discussed, but measures dealing directly with sanitation under war conditions attracted the greatest interest. Dr. Hermann Biggs, who had just returned from France, after investigating tuberculosis among the troops and civilian population, told of the mistakes which were responsible for the great increase of this disease among the French. His advice was very profitable to those present, upon whom rests in large part the responsibility for preventing similar conditions among our own people.

From the discussions of both conferences, it was plain that the state health officials throughout the nation were eager to do all in their power to protect the health of the civil and military populations of their states, and to leave their present duties if they could serve the nation better in other states or in foreign countries.

The keynote of the meetings was a plea for immediate organization and strong leadership. The great size of the sanitary problem was apparent, and everyone wanted instructions relative to the part the state sanitarians should play in the government's war plans.

The spirit of the meetings and a few of the suggestions which were formulated are expressed in the following resolutions adopted by the Conference of State and Provincial Boards of Health of North America:

We, the executive health officials of the several states and territories, in conference assembled, do hereby

Resolve, That under conditions incident to a state of war, the public health personnel, resources and organizations of the several states and territories should be placed at the disposal of the federal government.

Whereas, The federal public health service has hitherto been the natural point of contact between the federal government and the several states and territories in all matters pertaining to public health, and the aforesaid service is thoroughly familiar with the manner of administration of public health measures by state and local boards and departments of health; be it therefore

Resolved, That it is the opinion of the executive health officials of the several states and territories in conference assembled, that the federal public health service, under conditions incident to a state of war, should be the agency of the federal government through which correlation, supervision, and direction of the various state and local health agencies should be exercised; and be it further

Resolved, That aside from the hygienic and medical care of the actual military and naval forces, all sanitary and hygienic activities incident to a state of war which require a national policy, should be correlated, supervised, and directed by the United States Public Health Service.

Whereas, The present personnel and organization of the federal public health service is entirely inadequate; be it therefore

Resolved, That it is the opinion of the executive health officials of the several states and territories, in conference assembled, that a national sanitary reserve corps should be created as an auxiliary to the federal public health service.

Resolved, That the surgeon general of the United States Public Health Service be requested to definitely formulate and advise the executive health officials of the various states and territories of the lines of activity in which the United States Public Health Service is able to extend aid to the state and local health officials of the country in case of necessity during the war.

Resolved, In the opinion of the executive officials of the health departments of the various states and territories, the state departments of health of the respective states and territories should assist the federal authorities in the following sanitary activities during the period of the war:

First—The sanitation of military and naval camps and camp sites.

Second—The exercise of police powers in relation to the sanitation of the environment of military and naval camps.

Third—The provision, when required, of public health laboratory facilities for the diagnosis and sanitary surveillance of infectious disease occurring among the troops.

Fourth—The provision as far as possible, when required, of hospital accommodations for the care of cases of communicable disease occurring among the troops.

Fifth—The protection of military and naval camps from the introduction of communicable diseases (including tuberculosis and venereal diseases) from the civilian population.

Sixth—The sanitation of intrastate transportation facilities.

Seventh—The investigation and exclusion from military and naval camps of disease carriers.

Eighth—The immediate reporting to the public health service of epidemic foci of various infectious diseases (especially poliomyelitis, epidemic cerebrospinal meningitis, smallpox, typhus, typhoid, and paratyphoid fevers and bacillary dysentery) developing in any of the states or territories.

Ninth—The sanitary supervision of refugees and interned aliens.

Tenth—The sanitary supervision of the sources of water, milk, and food supplies of the combatant forces.

Eleventh—The sanitary supervision of soldiers suffering from pulmonary tuberculosis, or those rejected from the army and naval forces because of this disease.

Twelfth—The sanitary supervision of migratory laborers and of industrial camps.

TYPHOID CONTROL MEASURES FOR WARM WEATHER.

By C. G. GILLESPIE, C. E., Director, Bureau of Sanitary Engineering.

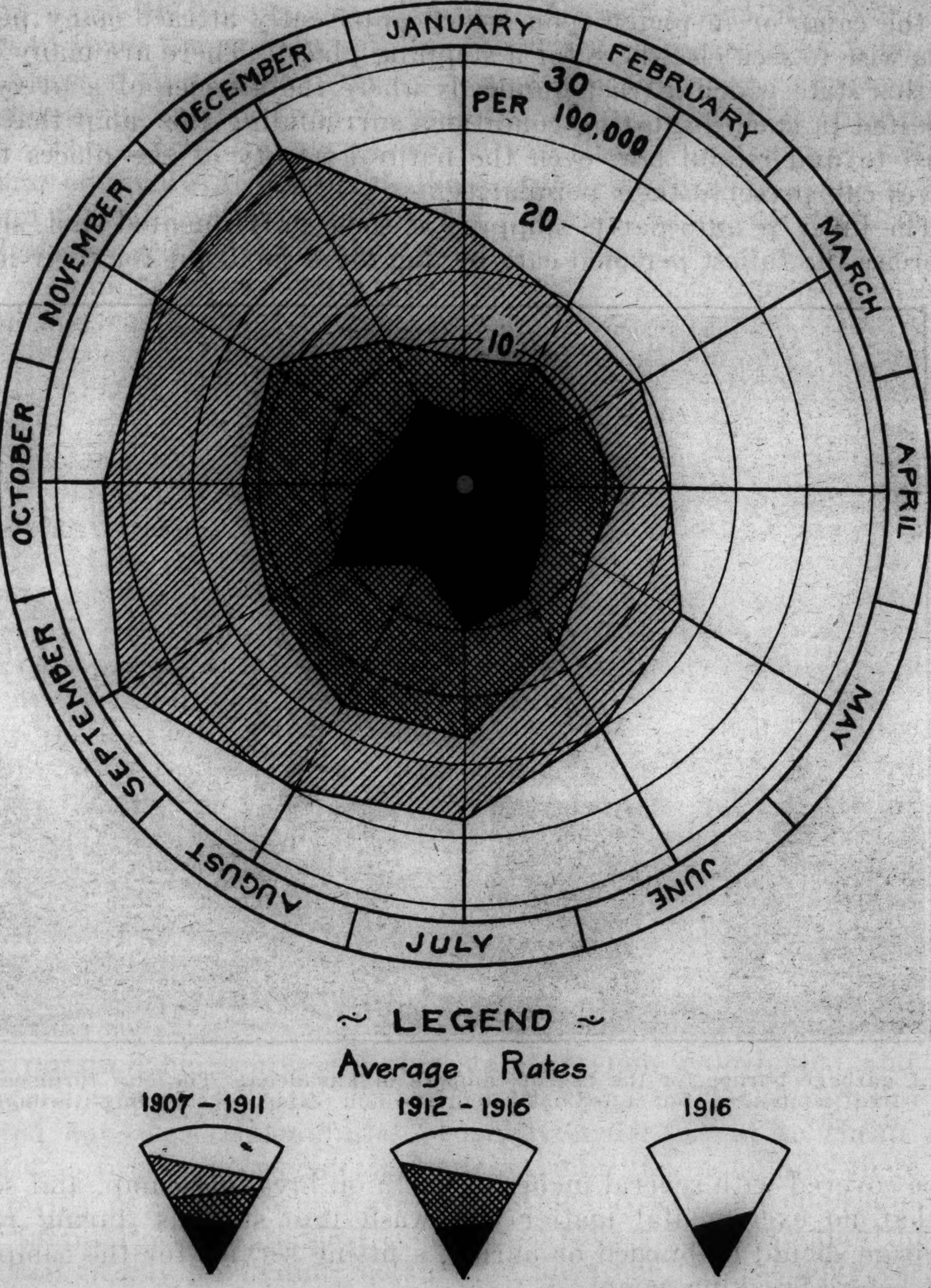
The accompanying chart is prepared from statistics over the past ten years, averaged by months for two five-year periods and also by months for the year 1916. It emphasizes an increased mortality from typhoid fever during the summer months. About the time this Bulletin appears this increase will have begun to manifest itself. From what is known of this disease and its mode of transmission, certain factors can be held responsible for the bulk of the warm weather typhoid. Typhoid is a disease of intestinal filth, spread by flies as well as by water and by contact infection of foods. Carriers of the disease, apparently healthy, and ambulatory cases, only moderately ill, are the gravest and most insidious menace to the health of the community. Certain personal precautions will protect one's self and the community from much unnecessary typhoid.

Vacation Typhoid.

Most people bent on vacation now go to the mountains. This is especially true since the advent of the auto and better mountain roads. Incidentally it has brought about greater menace to health from mountain streams which probably accounts for most of the typhoid observed in those returning from vacations. In this issue of the Bulletin is an article by Mr. Frank Bachmann on a field method of making small volumes of water safe, such as might be used on a more or less extended trip. Vaccination against typhoid is also advocated. In addition to these measures of personal protection, one's conduct in the mountain out-of-doors should be such as to preserve the pristine purity of streams and the cleanliness of watersheds and camp sites.

The summer resorts and summer cottages in established locations should by all means provide good sewerage and sewage disposal which will foul neither streams, dry stream beds nor the soil surface of a watershed. The most simple, fool-proof scheme of safe sewage disposal for a resort or family involves simply clarification of the sewage in a so-called septic tank, followed by underground distribution of the effluent through lines of tile pipe, rock-filled trenches covered with soil or similiar devices, the main object being to get the sewage to filter and seep away through the soil without exposure on the surface where flies may have access or evaporation may involve odors. If the location is one where the soil is very rocky or impervious, it will be most advisable to adhere to the sanitary privy or the better makes of chemical toilets. As a general proposition, all the sewage should be led to the same disposal field so as to keep the streams not only safe but clean. Toilet wastes must positively be excluded from the streams for the sake of safety alone.

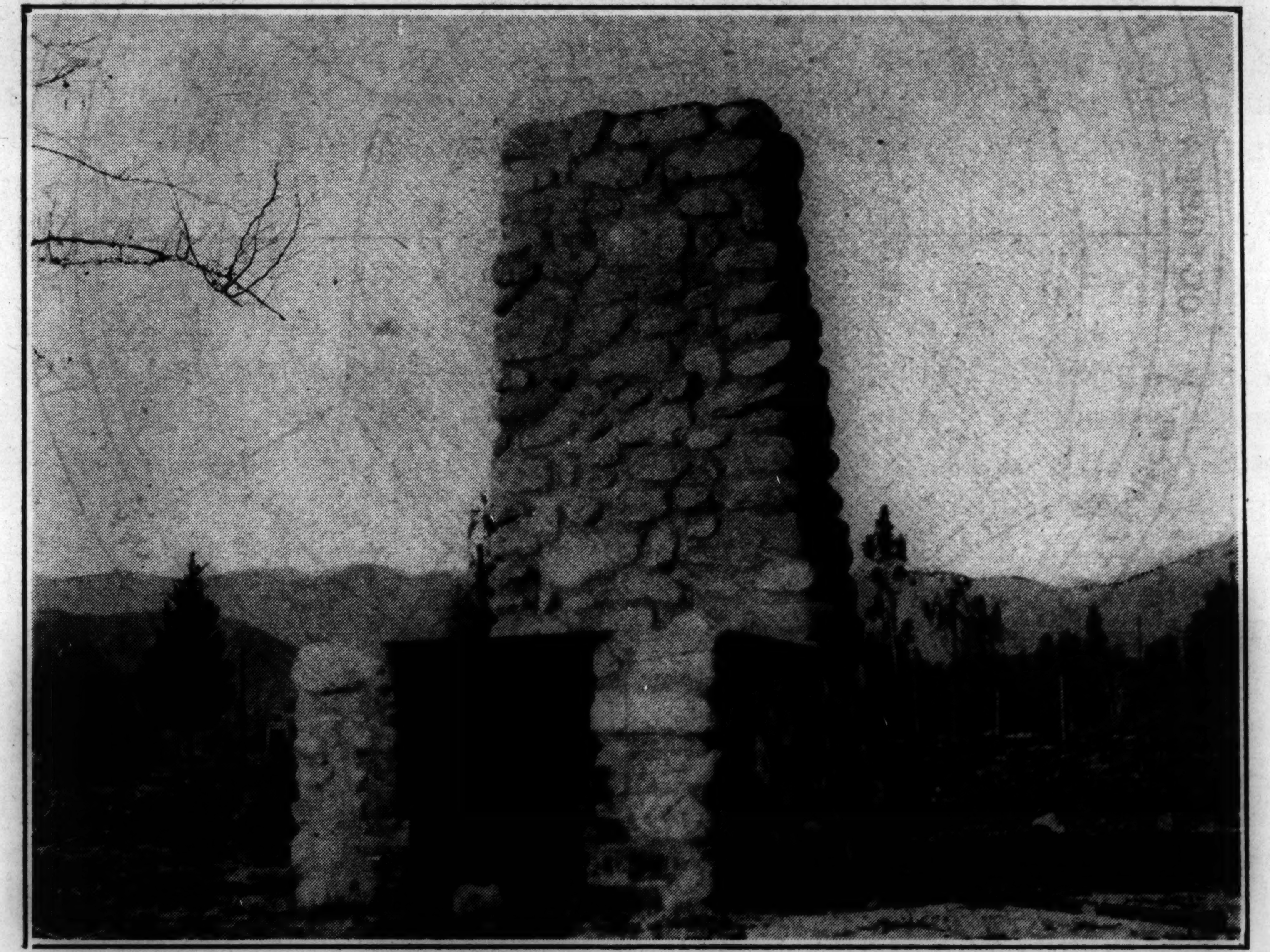
Camps of a more or less permanent nature or frequented picnic grounds should be selected after consideration of a good water supply and camp cleanliness. One should note that good fly-tight privies are within reach and that garbage and fly-breeding refuse is not allowed to accumulate. In the south neat garbage burners built of cobblestones



Typhoid mortality has been reduced greatly in California, both summer and winter. Summer conditions make the rate highest during that season of the year, necessitating special preventive measures. Flies, open toilets, uncooked vegetables contaminated with sewage, and careless campers are factors in making the high summer rate. If this high rate is to be lowered, more attention must be paid to the ordinary sanitation of every locality in California.

or brick have been built by enterprising citizens at camping spots here and there. Not only is the garbage burned but the camp coffee pot is heated at the same time. A photograph of such a garbage burner is here shown. If no fly-tight, sanitary privy is observed in the vicinity of the camp or in picnic spots which apparently attract many people, it is wise to seek elsewhere for a stopping place. There are many spots in this state which attract hundreds where the absence of a privy has resulted in such disgusting conditions surrounding the camp that it is hard to understand how even the natural beauty of the places themselves can preserve their popularity.

The hiker or auto party, stopping at some unfrequented spot, should exercise the fullest personal care by digging a small pit for their needs, to be covered with several inches of earth on breaking camp, and see to it that no excremental matter can wash into streams during rains. Garbage should be burned or buried, a fitting service for the camp fire just before breaking camp.



A garbage burner for the use of campers in Pasadena. The city furnishes free camp-sites for automobile tourists and campers traveling through the city.

Sewerage Facilities.

A recent canvass of the state showed that 175 communities have a quite complete sewer system; 158 communities are not yet provided with sewer systems, of which 52 are incorporated and have all the legal machinery to obtain a comprehensive sewer system. In the communities where there are no sewers, privies, cesspools or both are used. Approximately 100,000 persons in this state, grouped in community fashion, have not yet obtained the conveniences and insurance to health embodied in a modern sewer system. Every man's privy, therefore, affects the health of his neighbor or his own family and friends in these places and from time to time severe diarrhea or typhoid gets rooted. In communities of this size a typhoid death or two per year, if expressed in a rate per 100,000 population, would represent a rate of 200 or 300, about 40 times the average rate for the state. Danger arises from the easy access of flies to the privy vault or cesspool overflow, subsequently contaminating food, or from the pollution of nearby shallow or uncased wells. The danger can therefrom be very largely reduced by taking steps to eliminate flies through the complete removal of manure and piles of filth at least once a week, but it is most surely corrected in all its phases by getting rid of the privies and cesspools.

A community sewer system is not an item of great expense per individual and costs only a little more than the privy and no more than most cesspools. If the town is incorporated it may finance the project by voting bonds or assessing each property owner. If not incorporated, the state laws permit the formation of a sanitary district. This has been done in a number of cases, at Newcastle, Folsom, Ross and possibly others. The legislature just ended has improved the Sanitary District Act along very practical lines. No doubt freer advantage will be taken of this act in the future to procure sewage and garbage collection. Amongst other things, good ordinances with penalties should be quickly devised to assist the local officials in compelling clean-up of garbage refuse and the like. The state law in itself gives all authority necessary to compel connection with the sewer system.

The question of disposal of the sewage and refuse must not be passed over lightly. Neither stream pollution nor nuisance can be created without leaving the community to face a damage suit or prosecution. The State Board of Health should be consulted early in the course of any project contemplated.

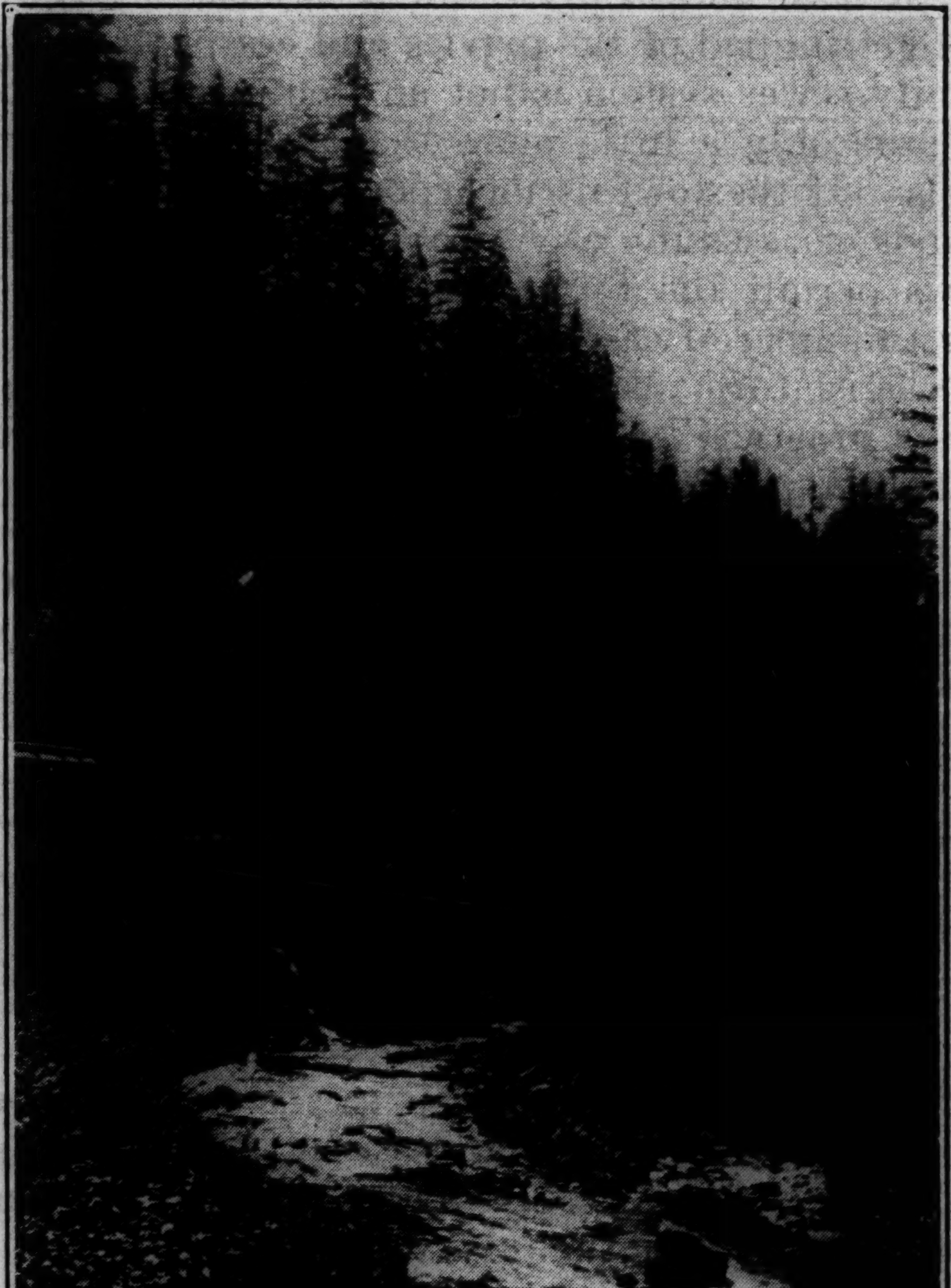
Water Supplies.

With all personal and community precautions, one should be as sure as possible that his drinking water is safe. Most community supplies from questionable sources in this state are now chlorinated and are therefore safe most of the time. As the dangers in the supplies are pointed out, most communities promptly make use of so cheap and effective a protection as chlorination. Among the mountains there are still plenty of streams which are unquestionably safe but one should be very familiar with watershed conditions above before assuming this to be a fact in any particular instance. Unless one is reasonably certain that the particular stream is safe, the drinking water should be thoroughly boiled or disinfected by some such means as that advocated in the article by Mr. Bachmann.

SAFE WATER ON OUTING TRIPS.

By **Frank Bachmann**, Chemist and Bacteriologist, Bureau of Sanitary Engineering, California State Board of Health.

The purity of a water can not be judged by its appearance. The things visible to the naked eye are usually harmless. The invisible germs of disease are by far the more injurious to human beings. Chemical poisoning is rare and is seldom encountered except in a few sections such as Death Valley, where arsenic has been found in certain springs. Bacterial poisoning, on the other hand, is a very real danger when waters become affected even in the slightest degree by human sewage.



The water in this stream is contaminated with sewage as shown by laboratory test. The purling, crystalline brooks of poetry, even though they fall in cascades and rills, may be unfit for drinking purposes.

To most people the requisite for a good drinking water is that it be cool, clear, sparkling and free from color and odor. These are all physical aspects of a water supply and do not convey a proper idea of the safety. Even the sparkle may be due to decomposition products, such as nitrates and carbonic acid. As a matter of fact, all surface waters, regardless of appearance, are subject to more or less human contamination. This may have come from the recent access of a hiker to the watershed or from the more persistent discharge of sewage into the stream from some private dwelling, resort or community on the stream or on some of its feeders. The average person does not contemplate with sufficient care the danger which may lurk in a given stream. A good deal of this carefree regard of water supplies is due to the very erroneous conception that streams purify themselves in flowing over their rocky beds. It is true that there is a "purification" when water cataracts along, but it pertains to aeration and oxidation of the dissolved organic matters and not to the bacterial ingredients. The babbling brook may be expected to taste sweeter than some other more stagnant body of water, but may, and usually does, contain even more danger-indicative bacteria than the standing water. Sewage bacteria introduced into water gradually disappear by reason of the unfavorable surroundings compared to those to which they were accustomed in the intestines. Laboratory work has shown, however, that typhoid fever germs will survive for as long as 30 days in waters of ordinary temperature and for much longer periods in cold waters. Such beautiful streams as the Truckee River and the upper Sacramento in the vicinity of Shasta are good examples of streams contaminated with sewage to such an extent that it can be easily distinguished by laboratory examination and yet are looked upon by almost everyone as being very safe. Every mountain stream is subject to more or less of this same kind of contamination, as vacation typhoid statistics too well show. Not long ago it came to our attention that automobile parties frequently stop for lunch or overnight along the banks of Auburn Ravine below Auburn and obtain their drinking water from this stream. Now at this point about nine-tenths of the water in the ravine came from the Auburn sewer system. Probably few mountain brooks are as bad as this, but the case cited illustrates well the impossibility of recognizing sewage-polluted waters and the risks people take on vacations.

Best to Boil Water.

The safest method of destroying disease germs in water is by actual boiling. Boiling the water for five minutes will kill the germs of typhoid and of allied diseases. This method is not always convenient, as laws prohibiting camp fires are in force in certain forested districts. Disinfection of water by chemical means appears to be of more general acceptability. Many chemicals have been recommended with more or less success. The chief purpose of a chemical is to destroy the germs by oxidation. The principle in chemical disinfection in small volumes of water is the addition of an excess of the sterilizing chemical, and after it has been allowed to react for a definite period of time a second chemical is added to neutralize the unspent portion of the first.

Some of the more satisfactory disinfectants are chlorine, in the form of chloride of lime, and iodine. Iodine in the form of tincture of iodine is considered more satisfactory for small volumes of water than the use of chloride of lime. It is more convenient to carry and use and less apt to affect the taste of the water. Tincture of iodine may be purchased from any drug store, and is fairly uniform in composition. It is essential in every camping kit, as it may be put to various uses as for sprains, scratches, cuts, snakebites, and the like. The fact that it is carried by many campers makes its use as a water disinfectant invaluable. A large number of experiments carried out in the laboratory of this bureau on waters from various sources likely to be used by campers has demonstrated the efficacy of tincture of iodine as a water disinfectant. It was found that for clear waters, even though they were grossly contaminated, three drops to each quart of water was sufficient to eliminate disease-producing bacteria.

Directions for Disinfection.

The method recommended is as follows: To one quart of clear water add three drops (such as is obtained with the ordinary eyedropper) of tincture of iodine. To waters which are cloudy or which contain considerable sediment, six drops may be needed. Iodine should be added until a slight but distinct brown color is noticeable. Allow the iodine to react for fifteen minutes, after which add a very small pinch of sodium thiosulphate, or hypo—the chemical used for fixing in photographic work—to destroy the residual iodine. The water will regain its original appearance.

As color appearance is the essence of disinfection a clear glass jar should be used. If the water is disinfected in a canteen or other invisible receptacle the color may be observed in a drinking glass. The fifteen-minute interval between addition of chemicals is very essential. Sterilization is not complete in less time. The amount of hypo used should be kept at a minimum, as overdosing will impart a slight bitter after-taste. The chemicals as recommended in the above amounts are not injurious to health.

Typhoid fever is not the only disease recognized as water-borne. Diarrhea, dysentery and some other bowel disorders occur far more frequently but are less fatal. Recently vaccination against typhoid has been perfected and its efficacy proven by use in the United States Army and by numerous individuals. The State Board of Health urges its universal use and distributes vaccine free of charge to physicians in California. One can be vaccinated for a nominal fee by his local physician. The hope of sanitarians is to eliminate typhoid fever from this country by greater cleanliness in food and water supply, by the proper disposal of wastes, and by vaccination.

As a general proposition it is far safer to carry along a jug of water from home where its quality is quite well known than to rely on any chance stream. On long trips, however, this is out of the question. The present article is intended to give a practical way of treating such water as is used on the trip so that no risk whatever need be taken.

APRIL REPORT OF PLAGUE SUPPRESSIVE MEASURES.

By C. L. WILLIAMS, Passed Assistant Surgeon, United States Public Health Service, in charge Joint Federal and State Plague Suppressive Measures.

The feature of the month of April, 1917, in the antiplague campaign, was a general survey of squirrel conditions in the San Joaquin Valley, particularly in Merced and Stanislaus counties. In the central portion of the valley, where the population is thickest, squirrels were least numerous and in many places entirely absent. Toward the borders of the valley, however, squirrels become progressively more evident and, in the foothills that line the valley on either side, are still quite numerous. The western side of the valley, but sparsely inhabited, consequently quite difficult to reach, exhibits a very considerable squirrel infestation. The conditions found in the San Joaquin Valley are typical of squirrel conditions in all valleys of considerable size, rather scattering in the central portions and other cultivated portions, but in large numbers along the hills on either side, which lands are almost exclusively used as pasture lands.

It is these hill lands bordering the large valleys that at present constitute the greatest problem in squirrel eradicative work. The relatively low income from these lands makes it very difficult to induce the owners of the land to kill the squirrels, while the large acreage necessitates expenditure of more money than is available for the so-called "forced work" by the state. It is hoped that under the new law whereby the state will collect funds so expended directly from the owners that these conditions will be largely remedied. In this connection material assistance is expected from the awakening interest in squirrel eradication in all of the valley counties.

A word in regard to the economy of the ground squirrel eradication is at present peculiarly appropriate, at a time when such stress is being laid on the conservation of the country's agricultural resources. During the past year it was estimated that squirrels on Union Island in San Joaquin County caused a damage to crops amounting to $65,000. An expenditure of $10,000 would practically completely free this land of squirrels and $1,000 a year thereafter would insure continued freedom. Surely it is more important to eradicate such a damaging pest from lands now under cultivation than to cultivate even very large tracts of now uncultivated lands.

If the squirrels on Union Island were killed there would be more additional food for use by the country than could be grown in all of the back yards of San Francisco, Sacramento and Los Angeles.

On April 4, 1917, a second plague-infected squirrel was shot near San Mateo, in San Mateo County.

Below is a tabulated account of squirrel eradicative measures during the month:

Number of inspections and reinspections of lands	1,488
Number of acres inspected and reinspected	532,581
Number of acres treated with poisoned grain	146,591
Number of acres treated with waste ball method	35,468
Number of holes treated	283,815
Number of acres treated with destructors	573
Number of acres treated with hose and funnel	5,501

THE MAY MEETING OF THE STATE BOARD OF HEALTH.

The State Board of Health held its regular monthly meeting in Sacramento on May 5, 1917. The following members were present: Drs. George E. Ebright, president, Fred F. Gundrum, Edward F. Glaser, Adelaide Brown, and Robert A. Peers.

Consideration was given to the case of a typhoid carrier near Bakersfield, who had been found, by investigation of the Bureau of Communicable Diseases, to be responsible for twenty-four cases of milk-borne typhoid fever in the previous twelve months. A resolution was passed forbidding the sale of milk until the carrier had been removed from the dairy.

The board instructed its attorney to institute the proper legal proceedings to compel the supervisors of San Luis Obispo County to appoint a county health officer as required by law.

A physician who had failed to report a case of diphtheria and had allowed the patient to travel to another city, was given a hearing. He plead ignorance of the true nature of the disease. A warning was given and action was deferred.

The director of the Bureau of Tuberculosis was instructed to request the federal authorities to notify the proper local authorities of the names and addresses of all applicants for military service rejected on account of tuberculosis.

The following resolution was adopted and ordered sent to the mayors of all incorporated cities in California:

> **Whereas, Every possible protection to health and physical welfare should be afforded those enlisting in the federal service and the citizens of the state at large; and**
>
> **Whereas, Experience shows that unless restrained by public authority prostitutes gather in large numbers near army camps and spread venereal diseases among the soldiers; and**
>
> **Whereas, Said diseases are a serious factor in morbidity and reduced efficiency, and a menace to the public health; therefore be it**
>
> **Resolved, That the State Board of Health of California urge upon all mayors throughout the state that they demand from their health officers, police departments, and other appropriate officials an active policy of protection of the enlisted men and of the civil community against this menace to the public health; and, be it further**
>
> **Resolved, That detailed reports be requested of said officials setting forth the recommendations made by them and the methods of "preparedness" being enforced by them to meet this public health problem.**

In accordance with the recommendation of the director of the Bureau of Sanitary Engineering, the board issued a permit to the city of Rio Vista to supply water from wells to the city of Rio Vista.

A permit was issued to the city of Paso Robles to treat its sewage in an Imhoff tank and empty the effluent on a sand bank adjacent to the Salinas River.

Two nurses were given certificates as registered nurses.

The vacancy in the position of assistant engineer in the Bureau of Sanitary Engineering was filled by the appointment of Mr. Clyde F. Smith.

Many items of routine business were transacted.

Hearings were held in cases of alleged violations of the foods and drugs laws and appropriate actions were taken.

W. A. Sawyer, Secretary.

REPORT OF THE BUREAU OF ADMINISTRATION.

WILBUR A. SAWYER, M.D., Director.

Public Health Activities of Board Members.

Dr. Robert A. Peers presided at a symposium on tuberculosis at the annual meeting of the Medical Society of the State of California, San Diego, April 17th. Doctor Peers also gave a paper on "Medical Inspection in Public Schools" for the State Association for the Study and Prevention of Tuberculosis, in Oakland April 23d.

Dr. Adelaide Brown, during the month, gave an address on "Social Hygiene" before the training school of St. Luke's Hospital, and also an address of "Clean Milk and What California Has Done to Secure It."

MORBIDITY REPORTS.

GUY P. JONES, Morbidity Statistician.

In spite of the fact that a very large number of cases of measles were reported to the State Board of Health during April of this year, swelling the total number of cases of reportable diseases to 8,476 for the month, there was a marked general improvement in reporting over April of 1916. Morbidity registration is showing a steady growth. Health officers, physicians, and laymen are showing a greater interest in the control of communicable disease. The outbreak of the war has stimulated this interest to a certain extent, but notwithstanding this fact, the interest in this work is much more manifest than it has been at any previous time. Public opinion is the great factor in disease control and the value of public opinion is reflected perhaps to a greater extent in the control of communicable diseases than in any other branch of public health work.

The following table shows the prevalence of the reportable diseases in California by weeks during the month of April. The statistics for April of 1916 are included, for the purpose of comparison:

Morbidity for April, 1917, by Weeks.

	Weeks ending				Total April, 1917	Total April, 1916
	April 7	April 14	April 21	April 28		
Epidemic cerebrospinal meningitis	3	4	2	2	11	1
Chickenpox	166	145	239	171	721	426
Diphtheria	37	38	39	35	149	229
Erysipelas	18	9	9	16	52	38
Gonococcus infection	45	30	57	29	161	30
Malaria	5	10	3	10	28	22
Measles	945	1,318	1,012	1,136	4,411	480
Mumps	113	283	278	237	911	308
Pneumonia	46	38	38	47	169	124
Poliomyelitis			1		1	3
Scarlet fever	94	110	120	87	411	326
Smallpox	8	5	5	6	24	20
Syphilis	28	18	50	37	133	45
Tuberculosis	172	175	138	162	647	470
Typhoid	8	21	15	9	53	58
Whooping cough	54	88	81	308	531	510
Dysentery	1				1	2
Beriberi			1	1	2	1
German measles	8	14	12	13	47	11
Tetanus	1				1	1
Trachoma	5	13	3	3	24	3
Pellagra	1				1	2
Ophthalmia neonatorum				1	1	6
Totals	1,758	2,319	2,103	2,310	8,490	3,116

Measles.

More cases of measles were reported during April of 1917 than during any one month in the history of the state. The total reached 4,401 as against March of this year, when 3,868 cases were reported. This makes the total number of cases of measles reported in California during the first four months of 1917, 13,180. The number of cases reported in previous years are as follows:

1913	1,796
1914	8,852
1915	13,114
1916	4,268

Smallpox.

Twenty-four cases of smallpox were reported during April. The vaccination histories of these cases show that 20 had never been successfully vaccinated. During March there were 62 cases reported, one-half of which were in San Francisco. One-half of the cases reported during April were also in San Francisco, but the outbreak there has now subsided.

Typhoid Fever.

There were 53 cases of typhoid fever reported during April, 14 of which were in San Francisco, 6 in Bakersfield, 5 in Los Angeles and 6 in Riverside. There were 61 cases reported during March, the number for April showing a slight decrease.

Epidemic Cerebrospinal Meningitis.

This disease shows a slight increase during April, 11 cases having been reported during the month as against 6 cases reported during March. Four of the April cases were in San Francisco.

Poliomyelitis.

There was but one case of this disease reported during April, that case having been reported from Los Angeles. There were 4 cases reported during March.

Malaria.

Malaria shows a slight increase for April, 29 cases having been reported, nearly all of which were in the interior valleys.

Scarlet Fever.

The prevalence of scarlet fever decreased slightly during April, 410 cases being reported as against 535 cases reported in March.

Whooping Cough.

Whooping cough increased greatly during April. There were 531 cases reported during the month, while during March there were but 168 cases.

Mumps.

Nine hundred eleven cases of mumps were reported during April, about the same number that was reported during March.

Chickenpox.

Chickenpox showed a slight decrease during April. There were 721 cases reported, while during March there were 942 cases.

Summary.

The most prevalent diseases during April were measles, mumps, chickenpox and whooping cough. The communicable diseases, of which an unusually small number of cases were reported, are malaria, poliomyelitis and typhoid fever.

SANITARY INSPECTIONS.

EDWARD T. ROSS, State Sanitary Inspector.

During the month of April practically all river steamers plying between San Francisco, Sacramento and Stockton and all ferry steamers plying between San Francisco and Oakland were reinspected. It was learned that many of the sanitary improvements recommended have been made. Sanitary drinking fountains or individual cups have been provided, mess spaces, galleys and toilets have been screened and in many cases the crew's quarters have been cleaned and additional ventilators installed.

A number of complaints relative to the methods used in handling "wet and dry wash" in various laundries were investigated. It was learned that in the majority of laundries doing this class of work the sacks used for the collection of soiled clothes and for the delivery of clean clothes are washed each time before the clean clothes are placed therein. Some laundries, however, use sacks for the collection of soiled clothes and for the delivery of clean clothes, without washing.

Inspections were made of various rural schools in Alameda, San Joaquin and Sacramento counties. The chief fault found was inadequate washing facilities and insanitary condition of toilets.

The last ten days of the month were spent in Los Molinos in company with Dr. Frank L. Kelly, assistant epidemiologist, instituting measures for the control of malaria. Public meetings were held in Dairyville, Oak Park District, Cone District and Los Molinos. These meetings were largely attended and the citizens expressed great interest in the plans outlined for the eradication of mosquitoes and control of malaria. Practically all of the citizens present at these meetings volunteered at least one day's work constructing ditches, draining pools, etc., the men providing teams and implements, the women providing lunches for the workers. Excellent results were obtained by this cooperative work.

In addition to inspections and reinspections made during the month a number of sanitary reports covering public schools, railway trains, river and ferry steamers, food supply places, etc., were submitted.

Summary of Operations.

Investigations (malaria), Los Molinos	1
River steamers reinspected	15
Ferry steamers reinspected	7
Public schools inspected	11
Laundries inspected	10
Railway trains inspected	22
Packing houses inspected	2
Miscellaneous premises inspected	60
Total	128

Sanitary Reports.

Investigations (rabies)	2
River steamers and ferryboats	222
Railway trains	2
Packing houses and canneries	4
Miscellaneous reports	
Total	230

REPORT OF THE BUREAU OF COMMUNICABLE DISEASES FOR APRIL, 1917.

J. G. CUMMING, M.D., D.P.H., Director.

Two More Typhoid Carriers Identified.

That the physician in attendance on a typhoid case can do much in the identification of the typhoid carrier is shown in the case of Mrs. R. of Alameda. When the attending physician receives from the laboratory a positive report on the Widal test he should then consider the possible sources of infection. In the case of the carrier Mrs. R. she was, during February, 1917, responsible for an isolated case of typhoid fever. When the Widal test of this case was reported to the physician, the history of the case was investigated and the indications were that the infection was from a typhoid carrier in the household.

The cooperation of the physician in obtaining stool specimens from all the members of the household was of great assistance in determining the source of infection. It is urged that more physicians resort to this preventive procedure. The purpose of this bureau is to be of assistance to physicians in such investigations and it will gladly send special containers to those who desire to submit stool specimens from suspected typhoid carriers.

In the case of the typhoid carrier Mrs. R., it is interesting to note that there is no history of her having had typhoid fever and that her Widal test is negative. Only four cases can be attributed to Mrs. R., the first one 15 years ago, and it is a significant fact that the remaining three cases which have occurred during the last eight years had their onset within two months after taking up their abode at the home of Mrs. R. It is fortunate that Mrs. R. did not come into direct contact with food consumed by the general public.

Milk-borne Typhoid in Bakersfield Resulting From a Typhoid Carrier.

The handling of a milk supply by a typhoid carrier is a practice dangerous for the community. Such an individual may infect the milk, resulting in an outbreak of typhoid cases among the consumers. This occurred in the series of 24 cases in Bakersfield between May, 1916, and May, 1917, all of which were ultimately traced by this bureau to one person as the source of the typhoid infection. This individual, although unaware of being a typhoid carrier, had infected that supply of milk to which all cases in Bakersfield during that period could be traced. The difficulty in detecting such a carrier was complex, owing to the fact that the individual was unaware of being a carrier, and that various dairies had been "helped out" with milk supplies obtained from the dairy with which the carrier was connected. This was further complicated because the infected milk supply was not furnished with regularity to any of the larger supply dairies. Furthermore, at one time this supply was not produced for a period of several months. Moreover the production and sale of this infected milk does not seem to have been known to the authorities at Bakersfield, apparently for the reason that it had been merged and sold with the milk of dairies within and without the city limits, the dairy supplying the infected milk being at a distance from the city itself.

In June there was one case, in July one, in August five, and during the following September, October, November and December, the city had no cases of typhoid. This was because the infected milk was not distributed from mid-August to mid-December. In January, however, five more cases occurred; in February, four cases; in March, five, and in April, three more cases.

It was found that the source of this series of typhoid cases was the milk supply of a small producer, ''D,'' who had intermittently sold bottled milk to the various dairies from April, 1916, to February, 1917, at which latter date he had purchased the entire interests of dairy ''K,'' and had merged its milk supply with that of his own cows and continued to operate under the name of dairy ''K.'' The evidence in support of this is as follows:

First—From April, 1916, to mid-August, 1916, ''D'' had sold all his milk to the partnership dairy ''AB.'' Result: all typhoid cases which occurred in the city during that period were among the dairy ''AB'' consumers.

Second—''D'' did not sell any milk from mid-August to mid-December, 1916. Result: no typhoid cases in the city during September, October, November, and December.

Third—''D'' again sold to dairy ''B'' intermittently from mid-December to February 1, 1917. Result: Occurrence of typhoid cases in the city, intermittent as to time of onset, and all among dairy ''B'' customers.

Fourth—Dairy ''K'' had maintained a typhoid-free record for at least four years among its customers previous to February 1, 1917, at which time it was merged and operated by ''D'' under the name dairy ''K,'' when new cases of typhoid arising in the city could be definitely traced to it.

Fifth—A definite history of previous typhoid infection among workars at the dairy ''D'' was obtained.

Sixth—Mrs. H., one of the bottlers at the dairy ''D,'' was found by laboratory examination to be a typhoid carrier.

Division of Biological Examinations.

Summary of Examinations Made in the California State Hygienic Laboratory During the Month of April, 1917.

Condition suspected	Positive	Negative	Inconclusive	Total
Main Laboratory at Berkeley—				
Anthrax	1	5		6
Diphtheria (diagnosis)	7	41	4	52
Diphtheria (release)	16	20	2	38
Diphtheria (school investigations)*	28	33	2	63
Gonococcus infection	14	9		23
Hookworm	8	158		166
Malaria		1		1
Rabies	7	6		13
Syphilis (Wassermann test)	18	159	6	183
Tuberculosis (sputum examinations)	6	22		28
Typhoid (Widal test)		8	2	10
Typhoid (excreta)	2	10		12
Miscellaneous		1	1	2
				597
Northern Branch at Sacramento—				
Diphtheria (diagnosis)	3	20		23
Diphtheria (release)	3	17		20
Malaria	1	7		8
Tuberculosis (sputum examinations)	4	26		30
Typhoid (Widal test)	2	12		14
				95
San Joaquin Valley Branch at Fresno—				
Diphtheria (diagnosis)		8		8
Gonococcus infection		1		1
Malaria	1	3		4
Tuberculosis (sputum examinations)		6		6
Typhoid (Widal test)		11		11
				30
Southern Branch at Los Angeles—				
Diphtheria (diagnosis)	9	30	2	41
Diphtheria (release)	2	13	1	16
Tuberculosis (sputum examinations)	4	13		17
Typhoid (Widal test)	5	10		15
				89
Total number of examinations				811

*Cultures taken from school children at Monterey (63).

Division of Epidemiological Investigations.

Epidemiological Investigations and Other Special Investigations During April, 1917.

Main Laboratory at Berkeley—
An investigation of typhoid fever at Bakersfield.
An investigation of scarlet fever at Bakersfield.
An investigation of a case of suspected smallpox in Oakland.
An investigation of amoebic dysentery at Campo Seco.
An investigation of smallpox in Oakland.
Continuation of hookworm investigation.
Total number of investigations 6

Division of Preventive Therapeutics.

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory During the Month of April, 1917.

	Treatment commenced	Treatment completed
Main Laboratory at Berkeley	0	0
Northern Branch at Sacramento	0	0
San Joaquin Valley Branch at Fresno	0	0
Southern Branch at Los Angeles	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist	0	0
Laboratory of San Francisco Board of Health, by deputized bacteriologist	0	0
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	0	0
Laboratory of San Diego City Board of Health, by deputized bacteriologist	0	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist	0	0
Laboratory of United States Naval Hospital, Mare Island, by deputized bacteriologist	0	0
Totals	0	0

Distribution of Laboratory Products.

Vaccine for the Prevention of Typhoid Fever Issued by the State Hygienic Laboratory During the Month of April, 1917.

Number of physicians to whom vaccine was sent	12
Number of complete treatments sent	272

Ophthalmia Neonatorum Prophylactic Outfits Distributed During the Month of April, 1917.

Number of outfits, containing two ampoules each, issued	478

Public Health Instruction.

Participation in Instruction in Public Health During April, 1917.

Main Laboratory at Berkeley—	
Bacteriological instruction outfits sent out	2
Bacteriological instruction outfits in use	32
Lectures by the director	4

REPORT OF THE BUREAU OF VITAL STATISTICS.

GEORGE D. LESLIE, Director.

Median Age of California Decedents.

The median age at death in California, half the decedents being younger and half of them older than the age stated, was 52.5 years in 1916, as compared with 51.8 years in 1915, 49.6 years in 1914, 49.4 years in 1913, 49.2 years in 1912, and 48.8 years in 1911. There was thus an advance between 1911 and 1916 of nearly four years in the median age at death in California. The advance in the median age continued without any break whatever throughout the six-year period but was particularly great between 1914 and 1915.

The continued advance in the median age of persons dying in California indicates that the warfare on preventable or postponable deaths is being conducted with success in this state. As fewer deaths occur in successive years from typhoid fever, with a median age under 30 years, and as a check is put upon further gains in the death toll for tuberculosis, with a median age around 35 years, people die in California more and more from other causes with higher median ages, such as cancer, nervous ailments, or Bright's disease, each with a median age about 60 years, or even from heart disease, etc., with a median age of nearly 70 years. The net result is an advance in the general median age, which stands as high as 52.5 years for California decedents in 1916. Even though the advance may seem only slight year after year, yet the fact of the making of any advance at all is encouragement for further efforts to prevent deaths from some diseases or at least defer the time for succumbing to other ailments.

Births, Deaths and Marriages for March.*

State Totals and Annual Rates. The following table shows for California as a whole, the birth, death and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 3,037,968 for California in 1917, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population, for Current and Preceding Months, for California: March.

Month	Monthly total 1917	Monthly total 1916	Annual rate per 1,000 population, 1917
March—			
Births	4,345	4,179	16.8
Deaths	3,775	3,366	14.6
Marriages	2,126	2,106	8.2
February—			
Births	3,899	3,951	16.7
Deaths	3,689	3,179	15.8
Marriages	2,271	2,028	9.7

NOTE.—The present report is for the month preceding but two. This order must be followed, because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the next preceding month is completed.

The birth and death totals for March, 1917, exceed considerably the same totals for March, 1916, while the marriage totals for the two years remain practically the same. The birth registration for March exceeded the death total by 570, or 15.1 per cent.

Length of Residence. The length of residence in California for the 3,775 decedents in March was as follows: Under 1 year, 182, or 4.8 per cent; 1 to 9 years, 664, or 17.6 per cent; 10 years and over, 1,695, or 44.9 per cent; life, 991, or 26.3 per cent; and unknown, 243, or 6.4 per cent.

County Marriage Totals. The counties showing the highest marriage totals for the month were as follows: Los Angeles, 504; San Francisco, 404; Alameda, 174; Orange, 108; San Diego, 85; Fresno, 84; Sacramento, 77; San Bernardino, 61; San Joaquin, 57; and Santa Clara, 52. The aggregate for San Francisco and other bay counties was 655 against 612 for Los Angeles and Orange counties together.

County Birth and Death Totals. Exclusive of stillbirths in both cases, the birth and death totals for the month were as follows for the leading counties, arranged in decreasing order of birth registration:

County	Births	Deaths	County	Births	Deaths
Los Angeles	1,077	963	San Joaquin	93	133
San Francisco	698	646	San Bernardino	91	126
Alameda	419	349	Kern	86	41
Fresno	231	88	Contra Costa	77	41
Santa Clara	146	141	Tulare	68	45
Sacramento	142	115	Stanislaus	59	38
San Diego	138	125	Sonoma	58	66
Orange	98	55	Ventura	50	25

City Birth and Death Totals. Birth and death totals, exclusive of stillbirths, are presented similarly for the principal California cities below:

City	Births	Deaths	City	Births	Deaths
Los Angeles	709		Bakersfield	51	
San Francisco	698		Stockton	50	
Oakland	279		Berkeley	49	
Sacramento	105		Pasadena	49	
San Diego	104		Long Beach	40	
Fresno	72		Alameda	39	
San Jose	68		Santa Ana	30	

Geographic Divisions (Infant Mortality). The following table presents data for geographic divisions to show in comparison with total births and deaths the number of deaths under one year as some indication of conditions with reference to infant mortality in different portions of the state:

Total Births and Deaths, with Deaths Under One Year, for Geographic Divisions: March.

Geographic division	Total live births	Total deaths. all ages	Deaths under 1 year
The state	4,345	3,775	353
Northern California—			
Coast counties	152	202	16
Interior counties	221	191	13
Central California—			
San Francisco	698	646	42
Alameda County	419	349	37
Other bay counties	137	96	10
Coast counties	254	252	25
Interior counties	855	616	66
Southern California—			
Los Angeles city	709	613	59
Rest of Los Angeles County	368	350	25
Other counties	532	460	60

Causes of Death. The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths From Certain Principal Causes, With Proportion per 1,000—Total Deaths for Current and Preceding Month for California: March.

Cause of death	Deaths: March	Proportion per 1,000	
		March	February
All causes	3,775	1,000.0	1,000.0
Typhoid fever	15	4.0	2.9
Malarial fever	1	0.2	----------
Smallpox	5	1.3	1.1
Measles	30	7.9	6.5
Scarlet fever	8	2.1	0.8
Whooping-cough	16	4.2	3.5
Diphtheria and croup	15	4.0	6.0
Influenza	33	8.7	16.5
Other epidemic diseases	18	4.7	2.2
Tuberculosis of lungs	476	126.1	125.0
Tuberculosis of other organs	83	22.0	11.9
Cancer	244	64.6	64.2
Other general diseases	169	44.8	38.8
Meningitis	23	6.1	4.9
Other diseases of nervous system	257	68.1	66.1
Diseases of circulatory system	756	200.3	204.1
Pneumonia and broncho-pneumonia	320	84.8	128.7
Other diseases of respiratory system	67	17.7	22.0
Diarrhea and enteritis, under 2 years	48	12.7	10.6
Diarrhea and enteritis, 2 years and over	24	6.3	5.2
Other diseases of digestive system	164	43.4	44.2
Bright's disease and nephritis	309	81.8	73.2
Childbirth	38	10.0	9.2
Diseases of early infancy	137	36.3	29.6
Suicide	82	21.7	21.7
Other violence	283	74.9	64.5
All other causes	156	41.3	36.6

In March there were 756 deaths, or 20.0 per cent of all, from diseases of the circulatory system; 559, or 14.8 per cent, from the various forms of tuberculosis; and 387, or 10.2 per cent from diseases of the respiratory system (pneumonia, etc.). Heart disease was far in advance of tuberculosis.

Other notable causes of death for the month were as follows: Violence, 365; Bright's disease and nephritis, 309; diseases of the nervous system, 270; cancer, 244; diseases of the digestive system, 236; and epidemic diseases, 141.

The deaths from epidemic diseases were as follows: Influenza, 33; measles, 30; whooping-cough, 16; diphtheria, 15; typhoid fever, 15; erysipelas, 13; scarlet fever, 8; smallpox, 5; and all other epidemic diseases, 6.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Influenza	
Alameda	4
Butte	1
Fresno	1
Glenn	1
Los Angeles	6
Riverside	3
Sacramento	1
San Benito	1
San Bernardino	1
San Joaquin	2
Santa Clara	1
Santa Cruz	1
Shasta	2
Siskiyou	1
Sonoma	1
Stanislaus	4
Tulare	2
Total	33

Measles	
Alameda	5
Glenn	1
Los Angeles	5
Riverside	1
Sacramento	3
San Francisco	13
Stanislaus	1
Tulare	1
Total	30

Whooping-cough	
Alameda	2
Fresno	3
Sacramento	2
San Bernardino	1
San Francisco	3
San Joaquin	1
Santa Barbara	1
Santa Clara	1
Stanislaus	1
Yolo	1
Total	16

Sex, Race and Nativity. The proportion of the sexes among the 3,775 decedents in March was: Male, 2,368, or 62.7 per cent; and female, 1,407, or 37.3 per cent.

The race distribution of decedents was: White, 3,504, or 92.8 per cent of all; Chinese, 101; Japanese, 100; Negro, 59; and Indian, 11.

The 3,504 white decedents were classified by nativity as follows: California, 888, or 25.3 per cent; other states, 1,437, or 41.0 per cent; foreign countries, 1,088, or 31.1 per cent; and unknown, 91, or 2.6 per cent.

Age Periods. The 3,775 deaths reported for the month were distributed by age periods as follows: Under 1 year, 353, or 9.4 per cent; 1 to 4 years, 169, or 4.5 per cent; 5 to 9 years, 64, or 1.7 per cent; 10 to 19 years, 115, or 3.0 per cent; 20 to 29 years, 276, or 7.3 per cent; 30 to 39 years, 368, or 9.7 per cent; 40 to 49 years, 455, or 12.1 per cent; 50 to 59 years, 463, or 12.3 per cent; 60 to 69 years, 571, or 15.1 per cent; and 70 years and over, 941, or 24.9 per cent.

Infant Mortality. The 353 deaths under one year of age were distributed by age in months as follows: Under 1 month, 195, or 55.2 per cent; 1 to 2 months, 66, or 18.7 per cent; 3 to 5 months, 38, or 10.8 per cent; and 6 to 11 months, 54, or 15.3 per cent. The figures show that about five-ninths of the deaths of children under 1 year occurred in the first month of life.

The 353 deaths under 1 year of age, in comparison with the 4,345 live births reported for the month, represent an infant mortality ratio of 81 per 1,000 births.

REPORT OF THE BUREAU OF TUBERCULOSIS FOR APRIL, 1917.

E. L. M. TATE, Director.

The social insurance amendment has passed both houses of the legislature and in 1918 will be placed upon the ballot. Perhaps the state in a few years can say to the wage earner, that by taking advantage of his insurance, he may receive treatment in a sanatorium, and his family not mortgage the home nor stand at the doors of associated charities asking for help.

The subsidy has justified all efforts made in establishing it. Recently at a meeting the superintendent of one of the subsidized hospitals made the following statement: "Previously patients came in and only stayed a few days; now the average stay is six months." We have asked, in a county where we have campaigned for a convalescent sanatorium, that if the appropriation could not be made for such an institution, that the associated charities budget be *trebled.* The cost of living, the colossal struggle that a woman must make if her husband is tuberculous, especially if there are children, make it necessary for giving aid that is adequate for keeping the entire family from breaking down.

Conscription brings tuberculosis workers everywhere to realize that they must face a new problem. First, the National Association for the Study and Prevention of Tuberculosis sounds the warning to its state secretaries. The recruit who enlists and can not be accepted because he is found tuberculous: What will you do with him? What can you do with his family? Second, the soldier, sailor and marine, who becomes tuberculous: What will you do with him? Third, the added increase in living that will lower the resistance of thousands of people, especially children: What will you do for them?

Not easy to answer, except to state that this country must profit by Europe's mistake. We can not let our soldiers return with tuberculosis as hundreds of thousands of men are returning from the trenches.

It is not only the problem of what to do with those who have tuberculosis. It's the prevention: What are we to do about it? Now, if ever, is the time for local committees to stick to their posts and help fight this invisible enemy. Those who have been on the tuberculosis firing line know it isn't interesting or spectacular. There are no flying flags, nor sounds of drums or bugles. It sometimes is the "petty round of irritating duties" that Stevenson has mentioned. It will mean, next fall, more school lunches. It may mean more portable houses to be loaned to patients for home care. It *will* mean more hospital beds, that we know, and it is the solemn duty of every citizen of California to see that this declining death rate of last year keeps on declining. We can do it, in spite of these abnormal times. It will mean work and sacrifice, but victory if we stick to it.

At last we have looked at a hospital site in San Bernardino County that is almost ideal, and we never hoped for that. There will be a modern building in the county soon. Riverside County will probably join with San Bernardino County in building a first-class sanatorium.

This means that many patients to whom the supervisors of both counties have made a small allowance, so they could live in a tent up on the mountain, will come into the hospital and have proper care, treatment and food. We are apt to think of martyrs as belonging to the Early Christian Era, but we have them with us even today. When this new hospital is completed, another place in California will become history and we hope be forgotten. This bureau wants to forget, too, and in another year we shall be able to feel that at least martyrdom and tuberculosis are not synonymous.

Hospitals Inspected.

Fresno, Los Angeles, Alameda, San Francisco, Sacramento and Santa Clara.

The advance in the control of tuberculosis all over the United States is shown in the recent report of the National Association for the Study and Prevention of Tuberculosis.

Over 2,500 different antituberculosis agencies are at work.

There are over 550 special tuberculosis sanatoria and hospitals; over 450 clinics and dispensaries; 300 open-air schools.

The death rate is reduced to 146.8 per 100,000 population. It is easy in the face of this fact, to realize what the educational campaign has done in the control of tuberculosis.

Must we be again confronted with a rising death rate? We shall be, unless adequate means are taken to care for soldiers who become tuberculous and unless we can persuade relief agencies not to cut down on food. It looks now as if the high cost of living and the grim spectre of tuberculosis may be marching hand in hand. The timely advice of the National Child Labor Committee and the Consumers' League must be acted upon. Long hours and the turning of children into industrial life during the adolescent period means an added burden on the community later on. Surely we must profit by the mistakes made in Europe during the war.

The bureau has for limited distribution a new book, ''Sleeping and Sitting in the Open Air.''

REPORT OF THE BUREAU OF SANITARY ENGINEERING FOR APRIL, 1917.

By C. G. GILLESPIE, C. E., Director.

Algæ troubles begin to appear in many water supplies about this time of year, causing no end of inconvenience to consumers. Algæ are minute aquatic plants and are harmless. They grow most profusely in ground waters and clear surface waters stored in open reservoirs exposed to sunlight. The plants while alive give off various vegetable oils, some of which have distinctive odors and flavors. Comparison has been made between these odors and those from pigpens and spoiled vegetables. The plants often develop a very heavy growth in a water, imparting a distinct cloudiness which may be mistaken for earthy turbidity. They propagate rapidly by seeding or fission, the old plants dying. Shortly thereafter decay of dead plants and attendant odors and flavors of plant decomposition are noticeable in the taps, especially the warm water taps. As stated before, these plants and their by-products are entirely harmless, but the consumer has good ground for any complaint registered. Only one or two species of plants can grow in the dark, hence reservoir covering will eliminate the trouble. In large reservoirs, however, covering is not practicable. Copper sulphate has been found most invaluable in such cases. Copper compounds are particularly toxic to these minute plants. The dose required for destruction varies with the different algæ, ranging from one to ten pounds per million gallons of water.

The usual mode of application is to drag bags containing the chemical back and forth across the reservoir from the back of a boat. A rowboat should make trips about 15 feet apart. A slow launch would take a strip about 40 feet wide with a bag dragging from each end of a transverse beam and one from the end of the boat. In addition, a good marginal treatment should be given by rowing a boat as near the edge as possible or even pulling the bag by hand if the water is very shallow.

Water fleas or crustacea in shallow arms can be killed by the same treatment if continued until the crustacea appear to stupify.

If one is watchful and can discover the organisms before they affect the entire reservoir, a marginal treatment will control the growth. These plants grow first in the warm shallow water and gradually spread to the entire lake if not curbed.

The treatment can not be applied to kill the large plants or weeds in a reservoir. It affects some species of fish in doses of 16 pounds per million gallons. Black bass are not affected by doses as high as 150 pounds per million gallons. The copper sulphate reacts with the water and settles out in the reservoir and does not reach the consumer.

The exact dose of copper sulphate should be determined from a microscopic examination, and a quart sample of water taken from the margin and from the body of the reservoir may be sent to this bureau for the purpose of determining the dose required. Five per cent, or one-twentieth of a quart, of formaldehyde must be added to each sample just after taking to preserve it. Otherwise the plants are in a decayed condition when they reach the laboratory.

Other useful steps in algæ control are the keeping down of all marginal weed growth and the planting of black bass in the reservoir. Decaying weed growth or any other form of organic matter intensifies the growth.

SEWAGE DISPOSAL.

Applications for Permits Filed.

None.

Permits Granted.

None.

Plans Filed.

National City: Plans for sewer system.

Investigations, Inspections and Reports.

Firebaugh: April 12. This town has a population of about 500, recently incorporated. It has bonded itself to the bonding limit and proposes to buy out a private sewer system serving part of the town and to construct additions thereto. A change of outlet will probably become necessary when a canal, now used for disposal, is abandoned. Advice was asked on the requirements for sewering into the San Joaquin River adjacent. The Bureau has indicated that chlorination will be required.

Vacaville: April 20. This was a reinspection to consider the best means of handling the city sewer farm. Soil conditions on the farm are dense adobe, practically impervious to water. Nuisance has been created by the escape of the sewage into a dry wash which passes through private property. The Bureau advocated diversion of the sewage onto surrounding orchard lands, utilizing the sewer farm in case of necessity to take the surplus sewage, with the distinct understanding that no sewage would be permitted to overflow into the wash. The Castner septic tank was opened up and found to be choked with a solid deposit of sewage matters from top to bottom. The material has a very offensive smell. It will be inadvisable to attempt cleaning on account of the creation of nuisance in the vicinity and because of the expense of cleaning. The city officials have a difficult proposition and in all probability a complete change of sewage disposal program will be necessary inside of the next year or so.

Dixon: April 20. The sewage is conveyed to a treatment plant consisting of a pumping station, septic tank, dosing tank and contact beds located within the race track in the city park. The plant effluent is used to irrigate alfalfa in the park; winter disposal is into a small pond or borrow pit made when the plant was built. Inspection indicates that the septic tank is in need of cleaning and that the contact beds have become choked from a mass of solids which have escaped from the septic tank. In common with most septic tanks, cleaning is out of the question because of nuisance which will be created in the vicinity. Some consideration has been given to abandoning the plant for an outfall leading to sloughs about two miles from town.

Santa Barbara County Hospital: April 3. New institution buildings five miles west of Santa Barbara are proposed. Sewage treatment in an Imhoff tank and final disposal by surface and subsurface irrigation have been recommended.

Camp Baldy: April 14. This is a resort of about 1,000 summer population, situated on San Antonio Creek, the source of water supply for Ontario and Upland. Sewage is passed through two septic tanks, one serving each side of the creek, and then enters cesspools dug in sand and gravel about 100 feet from the stream. Unless these cesspools overflow, which it is said never occurs, there should be no serious objection to this mode of disposal.

San Diego, Sierra Vista Tract: April 23. This is an unincorporated real estate development of about 35 families, with a sewer system and septic tank emptying into a wash three miles east from the center of San Diego. Nuisance has arisen and the installation of subsurface seepage tile in the bed of the wash has been recommended.

Holtville: April 20. The city has applied for permission to abandon its sewer farm and extend an outfall to Alamo River. The farm, it appears, is incapable of absorbing the sewage during much of the year and damage suits are threatened by neighboring land owners. An outfall to the river it is believed may be permitted, although it may require disinfection due to the fact that water is diverted from the river below for irrigation and domestic uses.

Escondido: April 24. The city septic tank was cleaned during the past year with the result that improved clarification of the sewage is obtained. Damage suit is threatened by the owner of land bordering the creek at the outlet. There is disagreement between him and the city as to whether a nuisance is ever created. This Bureau has not had occasion to inspect the outlet except when there was abundant diluting water.

Pasadena: April 6 and 28. The experimental activated sludge plant is producing a clear, stable effluent with an average bacterial reduction of about 90 per cent. It is now treating 50,000 gallons per day with four hours aeration, using 1 cubic foot of air per gallon of sewage, continuous flow.

Corona: April 13. Sewage treated in septic tank and used for irrigation of private land. Odors occasionally complained of. More careful handling of the tank effluent to prevent ponding should overcome the difficulty.

Ventura: April 4. Engineers have been employed to prepare plans for Imhoff tank to treat city sewage.

Ventura State School: April 4. Discharge of the septic tank effluent into dry wash has caused complaints, which, however, seem to be founded on fear of damage rather than on nuisance already produced. The tank and institution are new and time will be required to determine with what success the sewage can be disposed of with present facilities.

Compton: April 7. The Imhoff tank and contact filter have been in operation about five months. The sewage is very weak, apparently composed largely of ground water, consequently little difficulty in treatment is to be expected at present.

Hemet: April 11. Reinspection of sewer farm indicates satisfactory operation and absence of objectionable odors.

Elsinore: April 13. Sewage is treated in septic tank and then pumped to a five-acre tract owned by the city, where it is used to irrigate barley and pumpkins. The soil is practically pure sand and easily absorbs the water.

El Centro and Imperial: April 21. The new Imhoff tanks built by these cities are not yet in use. Upon filling, serious leakage developed, which required repair work.

Santa Ana: April 27. City owns farm of 151 acres for sewage disposal, but it becomes flooded in winter. City has contracted for the use of an outfall to the ocean, owned by the Southern California Sugar Company, and this affords relief in winter, but this contract expires in January, 1919, and company is unwilling to renew it. Consequently, the city proposes to build its own ocean outfall.

Calexico: April 20. Sewage is passed through a septic tank and discharged into the channel of New River, where there is always sufficient flow to prevent nuisance. A gross nuisance exists in Mexicali, Mexico, immediately adjoining Calexico. There the sewage is discharged over the stream bank on a broad, flat area that is seldom flooded. This could be largely overcome by extending the sewer a few hundred feet to the channel.

Riverside (*Riverside Portland Cement Company*): April 25. Propose to install sewer system with Imhoff tank and use effluent to irrigate about ten acres of sandy land. Engineers have been employed.

Chula Vista (*Fredericka Home*): April 23. Sewage disposed of in a cesspool that overflows and creates nuisance. Plan to build septic tank and pump to an area of high-lying land for irrigation of alfalfa.

Atascadero: April 2. The Imhoff tank and subsurface irrigation system to serve the Civic Center are in use and thus far have satisfactorily disposed of the sewage.

WATER SUPPLIES.

Applications for Permits Filed.

Pacific Grove (*the Monterey County Water Works*): To continue to furnish water to the cities of Monterey, Pacific Grove, Carmel-by-the-Sea and adjacent territory from Carmel River.

Port Costa (*Port Costa Water Company*): To continue to supply water to towns of Concord, Martinez, Port Costa, Crockett, Valona, Selby, Tormey, Oleum, Rodeo and intervening territory, all in county of Contra Costa, from wells near Concord, at Galindo, and in Port Costa, and from tunnels south of Port Costa and the canyon southeast of Crockett.

Manor (*Manor Water Company*): To furnish water to Fairfax Manor, Manor Townsite and Bothin Park, in Marin County, from 67-foot well on Lot 15, Block 5, Fairfax Manor.

Folsom (*Natomas Water Company*): To continue to supply water to Folsom from the South Fork of the American River.

Rio Vista: To continue to supply water to the city from four municipal wells.

Permits Granted.

Rio Vista: To continue to supply water from four municipal wells at the foot of Main street.

Plans Filed.

None.

Investigations, Inspections and Reports.

Firebaugh: April 12. This town intends to take over the privately owned water system under the same proceedings as mentioned for its sewer system. The bureau was consulted as to what treatment would be prescribed; chlorination was recommended.

Vacaville (Vacaville Light and Water Company): April 20. This company obtains its water supply from a series of shallow-cased wells about 58 feet deep, reaching to an impervious shale formation. Water is pumped into a 115,000-gallon distributing and equalizing reservoir. Aside from some minor improvements to the housing around wells for the exclusion of frogs and the smaller animals, the sanitary surroundings of the supply are satisfactory.

Dixon (Pacific Gas and Electric Company): April 20. The supply is drawn from two deep wells, which were later perforated in a water-bearing formation between 90 and 110 feet deep. The wells are 12 inches with an interior 9-inch well, the annular ring being filled with concrete. Inspection indicates that the supply is well protected against contamination.

Suisun: April 19. Good water supplies are developed with difficulty in the vicinity of Suisun. The city itself has probably spent more per capita than any other town in the state on its water development. The water is obtained from various works about 11 miles northwest of town; these works consist of two tunnels, one well with a deep well pump, several springs and a small surface supply, impounded in a 70,000,000-gallon reservoir, all of which leads to a 450,000-gallon service reservoir about three miles from town. The ground-water supplies are all high in iron and are affected by a serious growth of crenothix. The impounded water is also affected by a heavy growth of microorganisms, the particular species at this time being nostoc. Both supplies are turbid from the excessive content of algæ. The bureau still has under consideration means of remedying these conditions.

Hemet: April 11. The water company has made extensive improvements and repairs, necessitated by the floods of 1915, which inflicted great damage. Inspection indicates that the dangers of contamination on this watershed are probably not very great, but further observation is desirable to determine the facts definitely.

Elsinore: April 13. Supply is derived from a depth of 28 feet by means of a dug well and a tunnel overlying a seam in the bedrock encountered at that depth. The water has a temperature of 108° F. and a strong sulphur odor.

El Centro: April 20. Water is obtained from the Colorado River. Settling basins of about five days' consumption capacity are used to remove sediment. A chlorinating machine is installed, but has given poor service, due to frequent disorder, and much of the time the water is not treated.

Imperial: April 21. Water is derived from the Colorado River, drawn from irrigating ditch and partially clarified by settling in basins of about three days storage capacity.

Brawley: April 21. Water from Colorado River; drawn from irrigating ditch and settled for about two days.

Santa Ana: April 27. Water is derived from eight drilled wells, drawing from depths ranging from 150 to 1,000 feet. All necessary safeguards are observed to protect the supply against contamination.

Holtville: April 20. Water supply taken from irrigating ditch; original source, Colorado River. The only treatment is settling in basins having an aggregate capacity of about 36 hours' consumption. Have experimented with alum and lime as coagulants with no material benefit.

Corona: April 13. Domestic water is derived from Coldwater Creek and from wells in Temescal Basin, all about ten miles south of the city. Inspection and analysis indicate that the supply is safe.

Arroyo Grande: April 2. The city is now being supplied entirely from the two new drilled wells. Aeration of this water seems to successfully remove the objectionable sulphur odor. There is doubt as to the adequacy of the supply and it is understood the city will soon take steps toward installing a municipal system.

Ventura: April 30. The water company plans to install apparatus to chlorinate their supply taken from Ventura River.

National City: April 23. Work in repairing the Sweetwater dam, necessitated by the flood of 1915, is still in progress. Chlorine is being continuously applied to the water as it enters the supply main leading to town. The reservoir was being treated at the time of visit with copper sulphate in an amount of one part per five million.

Calexico: April 20. Water derived from an irrigation ditch fed by the Colorado River. After partial clarification in settling basins, it is passed through a slow sand filter equipped with a Blaisdell washing machine. The old filter is at present being overhauled and a second unit is being added.

SWIMMING POOLS.

In anticipation of the enforcement of law relating to the supervision of swimming pools, on its becoming effective two months hence, the bureau has begun the examination of swimming pools. The pool of the State School for the Deaf and Blind in Berkeley and the municipal swimming pool in San Rafael were inspected and much valuable data secured. As the San Rafael baths are probably the finest municipal baths in this state, much weight will be given their methods of operation and maintenance in devising rules for other public baths in the state.

MISCELLANEOUS.

A sanitary inspection of the town of Ross was made with Dr. Frank L. Kelly. Several insanitary conditions were observed, including a serious sewer condition whereby overflow occurs into an adjacent creek. This is particularly pronounced during wet weather when the capacity of the lower end of the sewer system is overtaxed.

LABORATORY WORK.

Bacteriological examinations of water—222, of which 91, or 41 per cent, showed contamination.

Chemical examinations of water—223 (partial).

Sanitary chemical examinations of water—3.

Mineral examination of water—1.

Microscopic examinations of water—6.

Bacteriological examination of sewage—2.

Chemical examinations of trade waste—6.

REPORT OF THE BUREAU OF FOODS AND DRUGS FOR APRIL, 1917.

E. J. Lea, M. S., Director.

Three hundred and thirty-two samples of foods, drugs and miscellaneous materials were received at the laboratory during the month of April.

Official Samples.

Foods.

Butter		1
Candy		16
Chocolate		1
Coffee		3
Condiments		18
Catsup	10	
Chili sauce	1	
Mexican hot	1	
Mustard, prepared	2	
Tomato conserva	1	
Tomato paste	2	
Tomato sauce	1	
Cream of tartar		1
Eggs		5
Egg substitute		1
Extracts		6
Ginger	3	
Lemon	1	
Strawberry	1	
Vanilla	1	
Fish		4
Oysters	3	
Salmon	1	
Gelatine		1
Ice cream		2
Ice cream powder		1
Lard		1
Liquors		25
Brandy	4	
Cognac	2	
Cognac brandy	2	
Cordial	1	
Gin	4	
Green opal, imported	1	
Kummel	1	
Pisco	1	
Vermouth	1	
Whiskey	8	
Meat, chopped		1
Milk		4
Fresh	3	
Malted	1	
Molasses		1
Oil, salad		1
Pastes		3
Egg noodles	2	
Spaghetti	1	
Peppermint, essence		4
Pie topping		1
Sausage		3
Spice, fruit cake		1
Syrups		6
Maple	4	
Raspberry	2	
Vegetables, canned		2
Corn	1	
Peas	1	
Vegetables, dried		4
Beans	3	
Peas	1	
Vinegar		26

Drugs.

Acid acetyl salicylic		1
Alcohol		3
Camphorated oil		4
Capsules		1
Carbolic acid		1
Chilblain chaser		1
Citrate of magnesia		2
Emulsion cod liver oil		1
Ginger		4
Essence of ginger	1	
Jamaica ginger	3	
Klondyke salve		1
Pills, blood and liver		1
Sweet almond oil		1
Sweet spirits nitre		1
Tincture iodine		4

Eggs. The inspection of bakeries shows that many bakers are still using questionable eggs, such as decomposed incubator eggs and cull eggs from other sources. Furthermore, the evidence shows that many bakers use decomposed, moldy, sour and stale incubator eggs. Bakers, as well as wholesalers, will be held responsible for bad eggs found in their possession.

Oysters. Two samples of oysters, bought as fresh oysters, were examined and found to be excessively decomposed. In one instance, oysters bought from the same source caused severe illness in both a man and his wife. These oysters were shipped from New York, packed in ice, and had evidently been on hand with the local dealer, without proper packing, sufficiently long to become decomposed.

Liquors. There appears to be more adulteration of liquors in this state at the present time than in any other line covered by the California pure food law. This, no doubt, is partly due to the scarcity of imported liquors, and partly to the fact that the state has not, until recently, prosecuted a vigorous campaign on liquors. The complete inspection of a town frequently reveals more adulterated samples of liquor than of all the adulterated foods and drugs together. In the majority of cases the fault lies with the retailer who substitutes inferior and cheap goods for the genuine. However, several of the wholesale liquor dealers make a practice of substituting also.

Milk. The milk inspectors of this bureau have recently been engaged in the reinspection of a large number of dairies, milk depots, etc., that were found in poor condition some months ago. In almost every instance these dairies and milk depots were in satisfactory condition at the time of the second inspection. The defects found on the first inspection consisted of dirty and filthy milk, insanitary conditions, labeling milk as "Grade A," "Grade A Pasteurized," "Certified," and "Guaranteed" without proper authority. These defects were very largely overcome when the second inspection was made.

Alcohol. Three samples of alcohol were examined and found deficient in strength.

Tincture Iodine. Two samples of tincture iodine were found deficient in strength.

Acid Acetyl Salicylic. One sample of acid acetyl salicylic adulterated with milk, sugar and tartaric acid.

Jamaica Ginger. Two samples of Jamaica ginger were deficient in strength.

Unofficial Samples.

Foods.

Condiments—tomato paste		1	Jam	2
Egg substitute		1	Liquors—whiskey	1
Fish		2	Pickled pigs feet	1
Herringlets	1		Milk, condensed	1
Sardines	1		Vegetables—beans	3
Flour		9	Walnuts	1
Grape juice		1	Water	1

State Institution Samples.

Foods.

Baking powder		1
Baking soda		2
Cereals		12
Cheese		1
Chocolate		1
Cocoa		2
Coffee		5
Coffee substitute		1
Condiments—catsup		2
Cornstarch		2
Extracts		2
Lemon	1	
Vanilla	1	
Feed		2
Fish		5
Oysters	1	
Salmon	1	
Sardines	3	
Flour		5
Fruits, canned		16
Apples	2	
Apricots	2	
Blackberries	2	
Peaches	4	
Pears	3	
Plums	1	
Fruits, dried		17
Apples	2	
Apricots	3	
Currants	1	
Figs	2	
Peaches	2	
Pears	1	
Prunes	3	
Raisins	3	
Malt		1
Meat—bacon		1
Molasses		1
Olive oil		1
Pastes		2
Macaroni	1	
Spaghetti	1	
Salt		2
Spices		8
Cinnamon	2	
Mace	1	
Mustard	2	
Pepper, black	2	
Pepper, white	1	
Sugar		3
Granulated	2	
Powdered	1	
Syrup		3
Tapioca		2
Tea		1
Vegetables, canned		12
Corn	2	
Peas	5	
String beans	3	
Tomatoes	2	
Vegetables, dried		4
Beans	3	
Peas	1	
Vinegar		1
Water		1
Wheat starch		1

Miscellaneous.

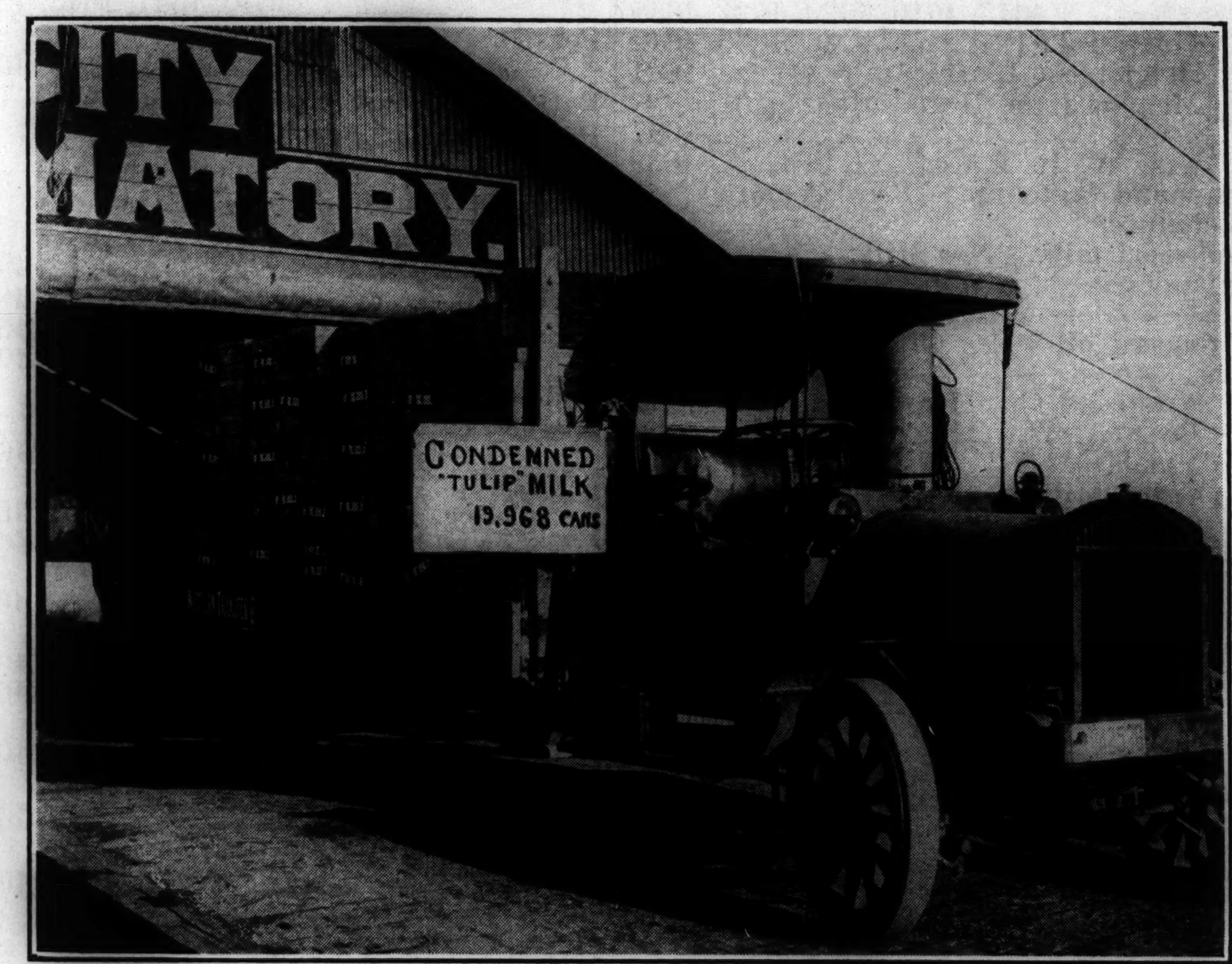
Acetic acid		1
Ammonia		2
Bluing		1
Bon Ami		1
Fire extinguisher fluid		1
Laundry soda		1
Leather		1
Matches		2
Sal soda		1
Shoe blacking		1
Soap		5
Hand	2	
Laundry	3	
Tallow		1
Teaspoon		1
		19

The Bureau of Foods and Drugs was called upon by the State Council of Defense for a report on the available supply of staple food in the State of California. A report was rendered which covered in detail the principal staples held in cold storage, and an estimate of the staples in possession of manufacturers, jobbers and wholesalers. There was not sufficient time to canvass the retail dealers. The results of this investigation would seem to indicate that the amounts of many of the staples on hand were somewhat below normal, but at the same time there appeared to be ample for our present needs.

During the past few months retail grocers have handled from 10 per cent to 100 per cent more staples, which in turn were purchased and stored by consumers having the necessary money or credit. This caused an apparent shortage in some localities and may have caused an increase in prices. As none of the staples appeared to be above normal in quantity, it would seem advisable to increase the production of all staple foods.

Tulip Brand Condensed Skimmed Milk.

More than 400 cases of Tulip Brand Condensed Skimmed Milk were destroyed on account of containing excessive bacteria of an objectionable character. This milk was manufactured from skimmed milk, collected from miscellaneous sources, and which had not been kept under proper sanitary conditions.



A truck load of canned milk condemned by the State Board of Health. This product was destroyed in a city crematory because it was unfit for human consumption.

The following Notices of Judgment have been received from the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C. Copies can be had by addressing the Superintendent of Documents, Government Printing Office, Washington, D. C.:

	N. J. No.
Acid, acetylsalicylic:	
Burrough Bros. Manufacturing Co.	4624, 4645
Apples, canned:	
Booth Packing Co.	4610
Musselman Canning Co.	4609
Aspirin. *See* Acetylsalicylic acid.	
Beans:	
Post Bros.	4627
pork and:	
—— ——	4646
Butter:	
Pittsburgh Produce Co.	4605
Brandy:	
Fialla & Eppler	4632
Chestnuts:	
—— ——	4602, 4615, 4619, 4620, 4621, 4638
Hattie, J. P.	4636, 4642
Henderson, Linthicum & Co.	4601
Meadows of Dan Mercantile Co.	4637
Utz, W. L. & Co.	4639
Compound ketchup. *See* Tomato ketchup.	
Condensed milk. *See* Milk.	
Coriander seed:	
—— ——	4644
Cottonseed oil. *See* Oil.	
Eggs:	
Arkansas City Produce Co.	4063
Bear, A. W.	4603
Feed, molasses:	
Cairo Milling Co.	4648
Grapefruit:	
—— ——	4614
Denney, John	4629
Denney & Co.	4629
Heikson, J. R. Packing Co.	4623
Humphrey's curative marvel:	
Gonzalez Padin Co.	4617
Jelly:	
—— ——	4608
Ketchup, tomato. *See* Tomato ketchup.	
Mexican oil:	
Hausman Drug Co.	4616
Milk, condensed:	
—— ——	4607, 4631
Oil,	
cottonseed:	
Fried, Harry	4618
Fried, L. & Sons	4618
Lange Bros.	4618
Metropolitan Importing Co.	4618
Mexican:	
Hausman Drug Co.	4616
olive:	
Spadaro & Co.	4611
Spadaro, F. and V. C.	4611
Olive oil. *See* Oil.	
Oysters:	
—— ——	4634, 4640, 4641, 4643, 4650
Persil:	
Arrow Distilleries Co.	4635
Pork and beans. *See* Beans.	
Pulp, tomato. *See* Tomato pulp.	
Puree, tomato. *See* Tomato puree.	
Sciroppo tamarindo. *See* Sirup.	
Sirup, tamarind:	
Fried, Harry	4618
Fried, L. & Sons	4618
Lange Bros.	4618
Metropolitan Importing Co.	4618
Tomato,	
conserve:	
—— ——	4630
ketchup:	
Colter, A. W. Canning Co.	4649
Lewis Packing Co.	4626
ketchup, compound:	
Chances, R. C. Sons	4628
pulp:	
—— ——	4613, 4622, 4647
Roberts, W. H. & Co.	4633
puree:	
Morris Canning Co.	4625
Tomatoes, canned:	
Schimp & Harris	4612
Vodka:	
—— ——	4604, 4606

Articles of Food Condemned Upon Physical and Chemical Examination as Unfit for Food, During Month of April, 1917.

Material	Amount	Condition	Locality	Disposition
Acid aceto-salicylic	¾ pound	Imitation	Los Angeles	Destroyed.
Acid aceto-salicylic	2 ounces	Imitation	Los Angeles	Destroyed.
Aspirin	300 tablets	Imitation	Los Angeles	Destroyed.
Beef extract, Armour's	5 boxes	Decomposed	Los Angeles	Destroyed.
Bread	250 loaves	Filthy	San Francisco	Coal oiled.
Butter	50 pounds	Filthy	San Francisco	Coal oiled.
Catsup, tomato	14 barrels	Decomposed	Monterey	Destroyed.
Catsup, tomato	10 bottles	Decomposed	Los Angeles	Destroyed.
Coffee, green	150 pounds	Filthy	San Francisco	Denatured.
Currants	30 pounds	Decomposed and wormy	Benicia	Destroyed.
Extracts	9 bottles	Old	Los Angeles	Destroyed.
Fish—Bloaters	50 pounds	Decomposed	San Francisco	Coal oiled.
Mackerel	2 cans	Decomposed	Los Angeles	Destroyed.
Herring, kippered	5 cans	Decomposed	Los Angeles	Destroyed.
Herring	7 cans	Swelled	Los Angeles	Destroyed.
Fruits, miscellaneous	38 cans	Fermented	Suisun	Destroyed.
Grape juice nectar	6 bottles	Fermented	Los Angeles	Destroyed.
Milk, condensed, Tulip Brand	804 cans (1-lb. size)	Filthy and decomposed	Eureka	Destroyed.
Milk, condensed, Tulip Brand	199 cans	Filthy and decomposed	Santa Ana	Destroyed.
Milk, condensed, Tulip Brand	41 1-lb. cans	Filthy and decomposed	Fortuna	Destroyed.
Milk, condensed, Tulip Brand	157 1-lb. cans	Filthy and decomposed	Ferndale	Destroyed.
Milk, condensed, Tulip Brand	19,968 cans (416 cases)	Filthy and decomposed	Sacramento	Destroyed.
Molasses	75 pounds	Filthy	San Francisco	Destroyed.
Oranges	1½ boxes	Moldy	Suisun	Destroyed.
Pickles	1 bottle	Decomposed	Los Angeles	Destroyed.
Prunes, dried	50 pounds	Wormy	Suisun	Destroyed.
Sardines	69 tins	Swelled	San Francisco	Destroyed.
Sardines	2 cans	Decomposed	Los Angeles	Destroyed.
Snails (bakers')	250	Filthy	San Francisco	Coal oiled.
Veronal	18 tablets	Imitation	Los Angeles	Destroyed.
Walnut meats	154 pounds	Rancid and decomposed	San Francisco	Coal oiled.

Cases Referred to District Attorneys April 7, 1917.

Name of article	Offense	Accused dealer	Locality
Alcohol, double strength, commercial	Adulterated and mislabeled; substitution of other materials.	Theo. Gier Wine Co., Inc.	Oakland.
Amer picon	Adulterated and mislabeled; substitution of other materials.	L. Quartaroli	Sonoma.
Amer picon	Adulterated and mislabeled; substitution of other materials.	A. N. Welander	Oakland.
Apple butter	Adulterated and mislabeled; filthy and decomposed.	Sanitary Food Products Co.	Los Angeles.
Brandy, blackberry	Adulterated and mislabeled; substitution of other materials.	The Mart, R. W. Levy, Mgr.	Vallejo.
Brandy, blackberry	Adulterated and mislabeled; substitution of other materials.	Julius Levin Co.	San Francisco.
Brandy, Hennessy 3-Star	Adulterated and mislabeled; substitution of other materials.	Julius Levin Co.	San Francisco.
Bread, Murray's Genuine Potato	Adulterated and mislabeled; no potatoes present.	Murray Baking Co.	Los Angeles.
Bitters, Ferro-China, Bisleri's	Adulterated and mislabeled; substitution of other materials.	L. Quartaroli	Sonoma.
Catsup	Adulterated and mislabeled; filthy and decomposed.	M. Rapport, Panama Oyster House	San Francisco.
Catsup, tomato	Adulterated and mislabeled; filthy and decomposed.	Julius Saltz, Terminal Oyster House.	San Francisco.
Coffee	Adulterated and mislabeled; contains cereal and chicory.	A. N. Welander, Adeline Cafe	Oakland.
Coffee	Adulterated and mislabeled; contains cereal and chicory.	M. Rapport, Panama Oyster House	San Francisco.
Coffee	Adulterated and mislabeled; contains cereal and chicory.	Edvin's Cafe, Edvin J. Wong, Prop.	Oakland.
Cognac, Hennessy & Co.	Adulterated and mislabeled; inferior materials substituted.	Louis H. Brownstone, The Mart	San Francisco.
Cognac, Martell	Adulterated and mislabeled; inferior materials substituted.	Fish Market Bar, Maranetto & Violetti.	San Francisco.
Egg substitute, white	Adulterated and mislabeled; filthy and decomposed.	M. Getz & Co., Inc.	San Francisco.
Eggs, fresh	Adulterated and mislabeled; stale and decomposed.	The Butter-Box, C. F. Voorhies	Oakland.
Gin, Gordon dry	Adulterated and mislabeled; inferior materials substituted.	John Steiner, Saloon, Union Hotel	Sonoma.

Gin, Gordon	Adulterated and mislabeled; inferior materials substituted.	L. Quartaroli	Sonoma.
Gin, Gordon	Adulterated and mislabeled; inferior materials substituted.	J. Modini	Sonoma.
Gin, A.V.H.	Adulterated and mislabeled; inferior materials substituted.	Fish Market Bar	San Francisco.
Gin, A.V.H.	Adulterated and mislabeled; inferior materials substituted.	Old Grotto, Ghiglieri & Torre	San Francisco.
Gin, A.V.H.	Adulterated and mislabeled; inferior materials substituted.	The Zone Bar, Hartman & Peers	San Francisco.
Gin, A.V.H.	Adulterated and mislabeled; inferior materials substituted.	Star Bar, Antonio Pereira	San Francisco.
Gin, A.V.H.	Adulterated and mislabeled; inferior materials substituted.	Cozy Corner, August Baader	San Francisco.
Ginger extract, diluted	Adulterated and mislabeled; other materials substituted.	F. Chevalier Co., Inc.	San Francisco.
Ginger, essence, diluted	Adulterated and mislabeled; substitution of other materials.	E. Martinoni, Liquors	San Francisco.
Ginger, diluted extract	Adulterated and mislabeled; substitution of other materials.	Clyde Stanley Co.	San Francisco.
Lemon flavor	Adulterated and mislabeled; diluted solution.	C. E. Carpenter	Santa Paula.
Milk, Horlick's malted	Adulterated and mislabeled; other materials substituted.	John Kockoris, Chocolate Shop	Healdsburg.
Oranges	Adulterated and mislabeled; decomposed.	M. Cohn & Sons	Oakland.
Peppermint, essence of	Adulterated and mislabeled; contains less than .2% peppermint oil.	Julius Levin Co., Inc.	San Francisco.
Peppermint, diluted, artif. colored	Adulterated and mislabeled; contains less peppermint oil than required.	F. Chevalier Co., Inc.	San Francisco.
Pisco*	Adulterated and mislabeled; other materials substituted.	Julius Levin Co., Inc.	San Francisco.
Pork and beans	Adulterated and mislabeled; soya beans and small amount of pork.	O. A. Nelson & Co., Inc.	San Francisco.
Raspberries	Adulterated and mislabeled; decomposed.	Merced Produce Co., Trabucco & Cavanna.	Merced.
Salad oil	Adulterated and mislabeled; filthy and decomposed.	R. E. Reeves	Guerneville.
Sausage, bologna	Adulterated and mislabeled; cereal not declared.	J. Margonis, Delicatessen Dept., Eagle Market.	San Francisco.
Sausage (ham sausage meat, pickle)	Adulterated; contains sulfur dioxid.	Saratoga Market, L. Richards	San Jose.

Cases Referred to District Attorneys April 7, 1917—Continued.

Name of article	Offense	Accused dealer	Locality
Sausage, liver	Adulterated and mislabeled; contains sulfur dioxid.	Saratoga Market, L. Richards, Prop.	San Jose.
Sherry, Duff Gordon	Adulterated and mislabeled; other materials substituted.	Louis H. Brownstone, The Mart	San Francisco.
Snow White	Adulterated and mislabeled; filthy and decomposed.	M. Getz & Co., Inc.	San Francisco.
Tuna in olive oil	Adulterated and mislabeled; filthy and decomposed.	Italian Canneries Corporation	Los Angeles.
Vermouth, Noilly Prat	Adulterated and mislabeled; other materials substituted.	C. H. Fuller, Saloon	Oakland.
Vermouth, Noilly Prat	Adulterated and mislabeled; other materials substituted.	Old Grotto, Ghiglieri & Torre	San Francisco.
Walnut meats, No. 3	Adulterated and mislabeled; immature and decomposed.	Sunset Nut Shelling Co., H. Sternau, Prop.	San Francisco.
Walnuts, shelled	Adulterated and mislabeled; filthy and decomposed.	Henry Rhine & Co., Inc.	San Francisco.
Whiskey, Dewar & Sons	Adulterated and mislabeled; inferior material substituted.	J. F. Mohr, Saloon	San Francisco.
Whiskey, Sunnybrook Bourbon†	Adulterated and mislabeled; other materials substituted.	Julius Levin Co., Inc.	San Francisco.
Whiskey, Sunnybrook Bourbon	Adulterated and mislabeled; other materials substituted.	Louis H. Brownstone, The Mart	San Francisco.
Whiskey, Old Crow Bourbon	Adulterated and mislabeled; other materials substituted.	Louis H. Brownstone, The Mart	San Francisco.
Whiskey, Old Crow Bourbon	Adulterated and mislabeled; other materials substituted.	Julius Levin Co., Inc.	San Francisco.
Whiskey, Imperial Scotch†	Adulterated and mislabeled; other materials substituted.	Winedale Co., Inc.	Oakland.
Whiskey, Mackinlay's V.O.B. Scotch	Adulterated and mislabeled; inferior materials substituted.	W. S. Burpee, Saloon	Walnut Creek.

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*Referred on three counts.
†Referred on two counts.

Convictions Under Foods and Drugs Acts, Reported During April, 1917.

Name of article	Offense	Accused dealer	Locality	Result
Butter	Mislabeled	Crestetto Bros.	Oakland	Guilty.
Butter	Mislabeled	American Creamery Co.	Oakland	Fined $25.
Catsup*	Adulterated and mislabeled	George Watanabe	Vallejo	Fined $15.
Chopped meat	Adulterated	Pioneer Meat Market	Suisun	Fined $25.
Cottonseed oil	Adulterated and mislabeled	R. E. Reeves	Oakland	Fined $5.
Eggs	Adulterated and mislabeled	F. R. Yerxa	Berkeley	Fined $25.
Gin	Adulterated and mislabeled	E. F. Thayer Co.	Oakland	Fined $10.
Gin	Adulterated and mislabeled	Murphy & Laws	Niles	Fined $5.
Gin	Adulterated and mislabeled	Ghiglieri & Torre	San Francisco	O. R. 6 months.
Macaroni	Adulterated and mislabeled	Roma Macaroni Co.	San Francisco	Fined $25.
Malted milk	Adulterated and mislabeled	Paris Candy Kitchen	Oakland	Fined $10.
Oysters	Adulterated and mislabeled	George Watanabe	Vallejo	Fined $5.
Pork sausage	Adulterated	Pioneer Meat Market	Suisun	Fined $25.
Pork sausage	Adulterated	J. Weiss & Co.	Eureka	Fined $25.
Sausage	Adulterated	Humboldt Market	Eureka	Fined $25.
Tincture of iodine	Adulterated and mislabeled	Wm. B. Alford	Ferndale	Fined $25.
Tincture of iodine	Adulterated and mislabeled	E. T. Evans	Eureka	Fined $25.
Vermouth	Adulterated and mislabeled	Ghiglieri & Torre	San Francisco	O. R. 6 months.

*Referred on three counts.

REPORT OF THE BUREAU OF REGISTRATION OF NURSES FOR MAY, 1917.

ANNA C. JAMMÉ, R. N., Director.

Knowledge of an important advance in nursing education comes to us through the announcement by Stanford University of a course to be established in the university which will lead to the degree of bachelor of arts and also that of graduate nurse.

This course is designed particularly for those who wish to prepare for administrative, teaching, social service or public health work. It will consist of three years of university work at Stanford and two years and three months at the university hospital, San Francisco.

The subjects taken at the university will be: Modern language, 15 units; chemistry, 15 units; physics, 5 units; zoology, 8 units; anatomy, 10 units; physiology, 10 units; bacteriology, 4 units. As electives the following subjects may be recommended to prospective nurses: English, education, psychology, economics and history. Students will have to complete 135 units of work at the university.

It is contemplated that the probationary period in nursing, which comprises three months, will be taken in the early part of the course, presumably during the first summer session. The two years in advanced nursing will follow immediately after the university work is completed.

Affiliation between universities and schools for nurses is not a new departure. For many years there have been schools of nursing in connection with university hospitals where these schools have been more or less under the university control and the teaching of the nurses has been done by the university faculty. There are at present such schools in connection with the universities of California and Stanford.

Organization of a school of nursing within a department of a university has not been done except in two instances, namely, at the University of Minnesota and the University of Indiana. In the former the degree of graduate in nursing is conferred and in the latter the degrees of bachelor of science and of graduate nurse. The students in each case must meet the university educational requirements for entrance.

It is with a profound sense of gratification we contemplate a work of this kind in our own state, where our future superintendents of hospitals and schools of nursing, also our social service and public health workers will be prepared. We may well feel that the future of good nursing education is secure when such an institution as Stanford University recognizes the dignity and need of academic training in preparation for the profession of nursing.

LIST OF COUNTY AND CITY HEALTH OFFICERS.

Alameda County—
Dr. J. Hal Cope--------Pleasanton
Alameda------------Dr. A. Hieronymus
Albany----------------Dr. J. F. Diddle
Berkeley--------------Dr. J. J. Benton
Emeryville-----------Dr. A. T. Drennan
Hayward----------Dr. F. W. Browning
Livermore-------------Dr. J. K. Warner
Oakland-----------Dr. Kirby B. Smith
Piedmont----------Dr. Benj. T. Mouser
Pleasanton--------------Dr. J. Hal Cope
San Leandro-------Dr. Luther Michael
Alpine County—
Mr. Fred S. Dunlap---Markleeville
Amador County—
Dr. G. L. Lynch------Amador City
Jackson-----------------------H. E. Kay
Sutter Creek-------------W. A. Burres
Butte County—
Dr. L. L. Thompson--------Gridley
Biggs-------------------R. W. Simmons
Chico--------------------W. H. Marshall
Gridley-----------Dr. L. Q. Thompson
Oroville----------------Dr. W. F. Gates
Calaveras County—
Dr. George F. Pache, Angels Camp
Angels Camp--------Dr. E. W. Weirich
Colusa County—
Dr. G. W. Derosier---------Colusa
Colusa--------------Dr. G. W. Derosier
Contra Costa County—
Dr. W. S. George----------Antioch
Antioch--------------Dr. W. S. George
Concord------------------Dr. F. F. Neff
Hercules-----------------F. P. McManus
Martinez-----------Dr. Edwin Merrithew
Pinole------------Dr. M. L. Fernandez
Pittsburg---------------Dr. H. E. Peters
Richmond-----------Dr. Chas. R. Blake
Walnut Creek-----------Dr. C. R. Leech
Del Norte County—
Dr. E. M. Fine-------Crescent City
Crescent City------------Dr. E. M. Fine
El Dorado County—
Dr. L. M. Leisenring----Placerville
Placerville-------------------P. J. Hall
Fresno County—
Dr. G. L. Long-------------Fresno
Clovis--------------Dr. M. S. McMurtry
Coalinga-----------Dr. C. W. Hutchison
Firebaugh----------------Dr. H. J. Greven
Fowler--------------------Chas. Chapman
Fresno---------------Dr. A. H. Sweeney
Kingsburg-------------Dr. J. A. Gillespie
Reedley------------Dr. Chas. H. Traber
Sanger-------------Dr. Thos. F. Madden
Selma--------------Dr. Fred H. Williams
Glenn County—
Dr. F. M. Lawson---------Willows
Orland------------------------Dr. S. Iglick
Willows---------------Dr. W. H. Walker
Humboldt County—
Dr. Carl T. Wallace----------Eureka
Arcata-------------Dr. G. W. McKinnon
Blue Lake---------Dr. Chas. N. Mooney
Eureka---------------------Dr. L. A. Wing
Ferndale-------------------Dr. J. A. Lane
Fortuna-------------Dr. Orville Rockwell
Imperial County—
Dr. R. K. McGuffin-------Imperial
Brawley-------------Dr. Eugene Le Baron
Calexico---------------------Dr. W. L. Ellis
El Centro-----------------Dr. F. A. Burger
Holtville----------------------C. A. Johnston
Imperial------------------Dr. R. K. McGuffin
Inyo County—
Dr. I. J. Woodin-----Independence
Bishop ------------------ ____________

Kern County—
Dr. C. A. Morris-------Bakersfield
Bakersfield-----------------Dr. P. J. Cuneo
Delano----------Dr. George H. Shrodes
Maricopa-------------------Dr. H. N. Taylor
McKittrick-----------Dr. Robert C. Dear
Taft-------------------------Dr. M. W. Pascoe
Tehachapi------------Dr. N. J. Brown, Jr.
Kings County—
Dr. C. L. Scott------------Hanford
Corcoran------------------Dr. J. T. Peery
Hanford-----------------Dr. B. Robbins
Lemoore------------------Dr. W. P. Byron
Lake County—
Dr. W. E. Upton-------Kelseyville
Lakeport----------------P. H. Millberry
Lassen County—
Dr. W. E. Dozier---------Susanville
Susanville------------------Dr. F. D. Walsh
Los Angeles County—
Dr. J. L. Pomeroy-----Los Angeles
Alhambra--------------------Dr. F. E. Corey
Arcadia-----------Dr. Chas. D. Gaylord
Avalon-------------------Dr. J. J. Peckham
Azusa----------------------Dr. John E. Hill
Beverly Hills--------Dr. Lowell G. Frost
Burbank------------Dr. E. H. Thompson
Claremont------------Dr. F. W. Thomas
Compton------------------------E. E. Elliott
Covina---------------------Dr. J. D. Reed
Eagle Rock-------------Dr. C. H. Phinney
El Monte-----------------Dr. S. L. Corpe
El Segundo------------------------R. F. Davis
Glendale-------------------Dr. R. E. Chase
Glendora------------Dr. A. L. McCarty
Hermosa Beach-------------B. F. Brown
Huntington Park-----Dr. W. Thompson
Inglewood------------Dr. H. A. Putnam
Long Beach---------------Dr. R. L. Taylor
Lordsburg----------------Dr. J. E. Hubble
Los Angeles-------------Dr. L. M. Powers
Manhattan Beach------Llewellyn Price
Monrovia--------Dr. Chas. D. Gaylord
Monterey Park------Dr. J. S. Trewhella
Pasadena----------Dr. Stanley P. Black
Pomona------------------------Dr. N. J. Rice
Redondo Beach-----Dr. D. R. Hancock
San Fernando--------Dr. Benj. B. Ward
San Gabriel-------------Dr. Ruth Purcell
San Marino-----Dr. W. LeMoyne Wills
Santa Monica ---------Dr. F. J. Wagner
Sawtelle-----------Dr. A. B. Hromadka
Sierra Madre-------Dr. R. H. Mackerras
South Pasadena---------Dr. C. F. Metcalf
Tropico------------------Dr. Wm. C. Mabry
Venice-------------------Dr. W. M. Kendall
Vernon----------------Dr. O. R. Stafford
Watts-------------------------Dr. E. J. Riche
Whittier---------------Dr. W. H. Stokes
Madera County—
Dr. L. St. John Hely-------Madera
Madera------------Dr. L. St. John Hely
Marin County—
Dr. J. H. Kuser------------Novato
Belvedere--------------Dr. Florence Scott
Larkspur-----------------J. R. McGuffick
Mill Valley--------------James V. Chase
Ross--------------Dr. Thos. U. Smyth
San Anselmo-----------Dr. O. W. Jones
San Rafael--------------Dr. W. J. Stone
Sausalito------------Dr. Allen H. Vance
Mariposa County —
Dr. F. L. Wright---------Mariposa
Mendocino County—
Dr. S. L. Rea------------------Ukiah
Fort Bragg-----------Dr. L. C. Gregory
Point Arena---------------Conrad Nicks
Potter Valley-----------------W. T. Eddie
Ukiah-----------Dr. Lew K. Van Allen
Willits--------------------Dr. F. C. Gunn

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LIST OF COUNTY AND CITY HEALTH OFFICERS—Continued.

Merced County—
Dr. J. L. Mudd---Merced
Gustine---Dr. C. E. Stagner
Los Banos---Dr. R. Jadarola
Merced---Dr. D. W. Zirker
Modoc County—
Dr. W. E. Coppedge---Alturas
Alturas---Dr. John Stile
Mono County—
Dr. C. H. Wood---Bridgeport
Monterey County—
Dr. Garth Parker---Salinas
King City---Dr. D. Brumwell
Monterey---R. L. Anderson
Pacific Grove---James P. Evans
Salinas---S. A. McCollum
Napa County—
Dr. O. T. Schulze---Napa
Calistoga---L. Randall
Napa---Alex. Hull
St. Helena---J. G. Johnson
Nevada County—
Dr. Carl P. Jones---Grass Valley
Grass Valley---Dr. G. E. Chappell
Nevada City---Geo. H. Calanan
Orange County—
Dr. A. H. Domann---Santa Ana
Anaheim---Dr. J. W. Truxaw
Fullerton---Dr. J. H. Lang
Huntington Beach---Dr. G. A. Shank
Newport Beach---J. A. Porter
Orange---Dr. F. L. Chapline
Santa Ana---Dr. J. I. Clark
Seal Beach---Dr. J. Park Dougall
Stanton---Dr. J. H. Swan
Placer County—
Dr. John Manson---Lincoln
Auburn---Dr. G. H. Fay
Colfax---Dr. R. A. Peers
Lincoln---F. R. Elder
Rocklin---Wm. H. Keeley
Roseville---G. W. Lohse
Plumas County—
Dr. B. J. Lasswell---Quincy
Riverside County—
Dr. James G. Baird---Riverside
Banning---Dr. L. M. Ryan
Beaumont---Dr. F. D. West
Blythe---Dr. W. H. Chapman
Corona---Dr. W. S. Davis
Elsinore---Dr. E. M. Arenschield
Hemet---Dr. H. O. Miller
Perris---Dr. J. W. Reese
Riverside---Dr. C. W. Girdlestone
San Jacinto---Thomas Lloyd
Sacramento County—
Dr. J. H. Leimbach---Isleton
Sacramento---Dr. G. C. Simmons
San Benito County—
Dr. J. M. O'Donnell---Hollister
Hollister---Dr. J. M. O'Donnell
San Juan---Joseph De Lucchi
San Bernardino County—
Dr. John W. Callnon, San Bernardino
Chino---Dr. Elgar Reed
Colton---Dr. J. A. Champion
Needles---Dr. A. S. Parker
Ontario---Dr. Calvert L. Emmons
Redlands---Dr. F. H. Folkins
Rialto---Mrs. W. N. Glasscock
San Bernardino---Dr. F. M. Gardner
Upland---E. R. Bowman
San Diego County—
Dr. O. G. Wicherski---San Diego
Chula Vista---Dr. Leila Latta
Coronado---Dr. Raffael Lorini
East San Diego---Dr. C. R. Carpenter
El Cajon---Dr. Chas. R. Knox
Escondido---Dr. B. L. Crise
La Mesa---Dr. L. W. Zochert
National City---Dr. Will L. Allen
Oceanside---Dr. R. S. Reid
San Diego---Dr. A. E. Banks

San Francisco (city and county)—
Dr. W. C. Hassler---San Francisco
San Joaquin County—
Dr. John T. Davison---Stockton
Lodi---Dr. S. W. Hopkins
Stockton---Dr. Linwood Dozier
Tracy---Dr. J. G. Murrell
San Luis Obispo County—
Dr. H. M. Cox---San Luis Obispo
Arroyo Grande---Dr. H. A. Gallup
Paso Robles---T. A. Hurley
San Luis Obispo---W. F. Cook
San Mateo County—
Dr. W. G. Beattie---Colma
Burlingame---Dr. Jane H. Parkhurst
Daly City---Louis Ross
Hillsborough---C. M. Hirschey
Redwood City---Dr. J. L. Ross
San Bruno---Dr. F. Holmes Smith
San Mateo---Dr. W. C. McLean
So. San Francisco---Dr. J. C. McGovern
Santa Barbara County—
Dr. G. S. Lovern---Santa Barbara
Lompoc---Dr. C. B. Constable
Santa Barbara---Dr. C. S. Stevens
Santa Maria---Dr. O. P. Paulding
Santa Cruz County—
Dr. Wm. H. Keck---Santa Cruz
Santa Cruz---Dr. H. E. Piper
Watsonville---Dr. F. H. Koepke
Santa Clara County—
Dr. Wm. Simpson---San Jose
Alviso---Dr. J. I. Beattie
Gilroy---Dr. John A. Clark
Los Gatos---Dr. R. Seldon Anthony
Mayfield---Dr. F. M. Seibert
Morgan Hill---Dr. W. D. Miner
Mountain View---Dr. A. H. MacFarlane
Palo Alto---H. F. Gray
San Jose---Dr. D. A. Beattie
Santa Clara---Dr. G. W. Fowler
Sunnyvale---Mrs. Norman Schofield
Shasta County—
Dr. S. T. White---Redding
Coram---
Kennett---Dr. J. P. Sandholt
Redding---E. A. Rolison
Sierra County—
Dr. O. A. Eckhardt---Downieville
Loyalton---B. M. Wheeler
Siskiyou County—
Dr. J. Roy Jones---Yreka
Dorris---Dr. A. A. Atkinson
Dunsmuir---Herman Woodward
Etna---Dr. W. H. Haines
Fort Jones---S. R. Taylor
Montague---Hugh W. French
Sisson---Dr. Paul Wright
Yreka---Dr. J. Roy Jones
Solano County—
Dr. W. C. Jenney---Vacaville
Benicia---Dr. P. B. Fry
Dixon---John C. Benson
Fairfield---F. L. Morrill
Rio Vista---Dr. Albert F. Welin
Suisun---
Vacaville---Dr. H. P. Palmer
Vallejo---Dr. E. A. Peterson
Sonoma County—
Dr. J. H. Shaw---Santa Rosa
Cloverdale---
Healdsburg---Dr. J. W. Seawell
Petaluma---Dr. R. B. Duncan
Santa Rosa---Dr. Jackson Temple
Sebastopol---Dr. J. B. Blackshaw
Sonoma---J. H. Albertson
Stanislaus County—
Dr. J. L. Hennemuth---Modesto
Modesto---Dr. E. V. Falk
Newman---Dr. H. V. Armistead
Oakdale---Dr. F. W. McKibbon
Turlock---Dr. G. L. Wilson

LIST OF COUNTY AND CITY HEALTH OFFICERS—Continued.

Sutter County—
  Dr. T. P. Peery---------Yuba City
 Yuba City--------------Dr. J. H. Barr
Tehama County—
  Dr. W. F. Maggard--------Corning
 Corning-------------Dr. O. F. Rudolph
 Red Bluff------------Dr. Walter Gavey
 Tehama---------------Dr. J. H. Belyea
Trinity County—
  Dr. D. B. Fields-------Weaverville
Tulare County—
  Dr. W. A. Preston----------Visalia
 Dinuba----------Dr. Wm. Whittington
 Exeter---------------Dr. J. F. Dungan
 Lindsay---------------Dr. C. W. Locke
 Porterville-----------Dr. O. C. Higgins
 Tulare---------------Dr. J. B. Rosson
 Visalia--------------Dr. W. A. Preston
Tuolumne County—
  Dr. Wm. L. Hood----------Sonora
 Sonora-------------------W. H. Dennis
Ventura County—
  Dr. A. A. Maulhardt-------Oxnard
 Fillmore----------Dr. Will R. Manning
 Oxnard-----------Dr. Ralph W. Avery
 Ventura------------------J. H. Hardey
 Santa Paula------------Dr. B. E. Merrill
Yolo County—
  Dr. W. J. Blevins--------Woodland
 Davis ----------------- ____________
 Winters-----------------Dr. R. E. Peck
 Woodland --------------Frank Mumma
Yuba County—
  Dr. J. H. Barr----------Marysville
 Marysville-------------Dr. A. L. Miller
 Wheatland------------W. H. Niemeyer